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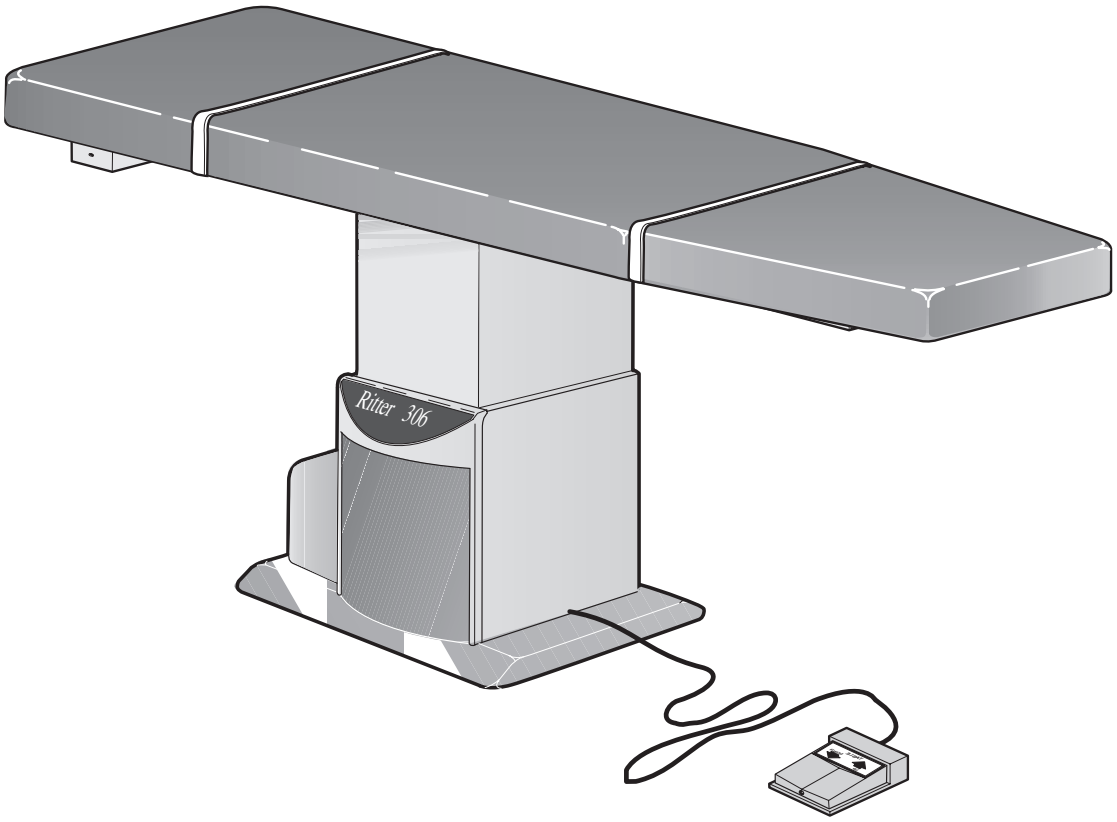
306 -001 thru -003

Ritter® by MIDMARK

Power Examination Table

Service and Parts Manual

Serial Number Prefix:
HJ, LJ & LK



MA389900

306 -001 thru -003

FOR USE BY MIDMARK
TRAINED TECHNICIANS ONLY

SF-1539

Part No. 004-0050-00 Rev. G (1/01/04)

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IMPORTANT INSTRUCTIONS

General Safety Instructions

Safety First: The primary concern of Midmark Corporation is that this table is maintained with the safety of the patient and staff in mind. To assure that services and repairs are completed safely and correctly, proceed as follows:

(1) Read this entire manual before performing any services or repairs on this table.

(2) Be sure you understand the instructions contained in this manual before attempting to service or repair this table.

Safety Alert Symbols

Throughout this manual are safety alert symbols that call attention to particular procedures. These items are used as follows:

DANGER

A DANGER is used for an imminently hazardous operating procedure, practice, or condition which, if not correctly followed, will result in loss of life or serious personal injury.

WARNING

A WARNING is used for a potentially hazardous operating procedure, practice, or condition which, if not correctly followed, could result in loss of life or serious personal injury.

CAUTION

A CAUTION is used for a potentially hazardous operating procedure, practice, or condition which, if not correctly followed, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

EQUIPMENT ALERT

An EQUIPMENT ALERT is used for an imminently or potentially hazardous operating procedure, practice, or condition which, if not correctly followed, will or could result in serious, moderate, or minor damage to unit.

NOTE

A NOTE is used to amplify an operating procedure, practice or condition.

Warranty Instructions

Refer to the Midmark "Limited Warranty" printed in the Installation and Operation Manual for warranty information. Failure to follow the guidelines listed below will void the warranty and/or render the 306 Medical Examination Table unsafe for operation.

- In the event of a malfunction, do not attempt to operate the table until necessary repairs have been made.
- Do not attempt to disassemble table, replace malfunctioning or damaged components, or perform adjustments unless you are one of Midmark's authorized service technicians.
- Do not substitute parts of another manufacturer when replacing inoperative or damaged components. Use only Midmark replacement parts.

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SECTION I
GENERAL INFORMATION

1.1 Scope of Manual

This manual contains detailed troubleshooting, scheduled maintenance, maintenance, and service instructions for the Model 306 Medical Examination Table. This manual is intended to be used by Midmark's authorized service technicians.

1.2 How to Use Manual

A. Manual Use When Performing Scheduled Maintenance.

(1) Perform inspections and services listed in Scheduled Maintenance Chart (Refer to para 3.1).

(2) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

B. Manual Use When Table Is Malfunctioning And Cause Is Unknown.

(1) Perform an operational test on table (Refer to para 2.1).

(2) Perform troubleshooting procedures listed in Troubleshooting Guide (Refer to para 2.2).

(3) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

C. Manual Use When Damaged Component Is Known.

(1) Replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

1.3 Description Of 306 Medical Examination Table

A. General Description (Figure 1-1).

The Model 306 Medical Examination Table is an examination table designed specifically for performing general medical examinations and procedures.

The major serviceable components of the table are the hydraulic base cylinder (1, Figure 1-1), anti-cavitation solenoid valve (2), motor pump (3), down function shuttle valve (4), up function shuttle valve (5), time delay relay (6), down function relief valve (7), up function relief valve (8), capacitor (9), foot switch (10), base slide assembly (11), chain assembly (12), and transformer (13) (100 VAC units only).

The Model 306 Series Medical Examination Table is available in three different configurations and are distinguished by the following model numbers:

306-001	115 VAC, Easi-Riser
306-002	115 VAC, Easi-Riser, w/ biopsys top
306-003	100 VAC, Easi-Riser, w/ biopsys top

B. Component Description (Refer to Figure 1-1 and Figures 5-5 and 5-6).

Anti-Cavitation Solenoid Valve (2, Figure 1-1).
The purpose of the anti-cavitation solenoid valve (2, Figure 1-1) is to prevent extending the cylinder rod should upward pressure be applied to the table top through manual lifting. It prevents hydraulic fluid from escaping out of the rod end port of the cylinder when the hydraulic system is *not* energized.

Up and Down Function Shuttle Valves (4 & 5, Figure 1-1).
The Shuttle Valves prevent hydraulic fluid from returning to the reservoir during the specific function.
During the "Up" function the check ball in the "Up" function shuttle valve (5, Figure 1-1) seats against the reservoir port, closing the port, preventing the pressurized fluid from entering the reservoir.
At the same time the check ball in the "Down" function shuttle valve (4, Figure 1-1) is repositioned due to the

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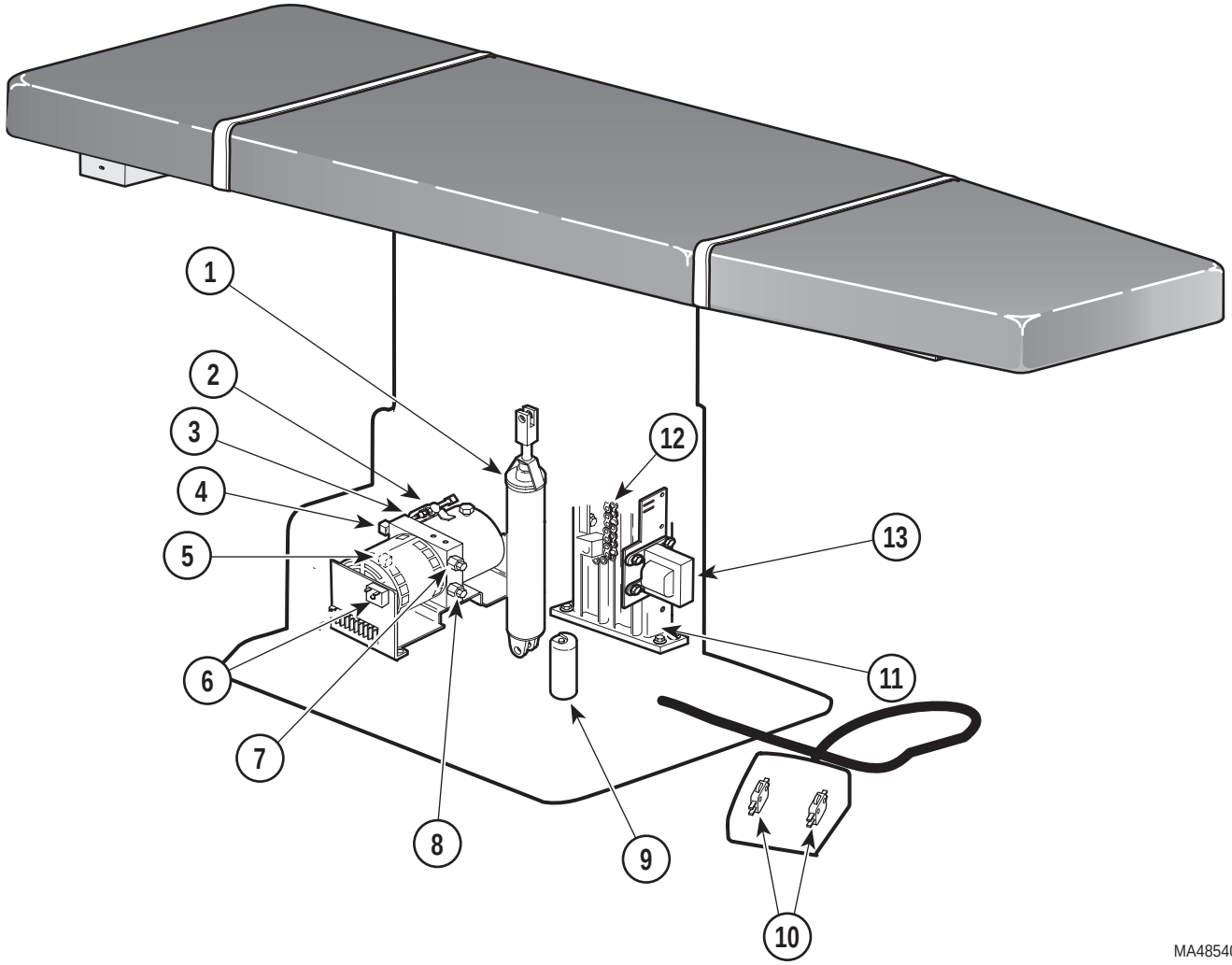
SECTION I
GENERAL INFORMATION



1. Base Cylinder	8. Up Function Relief Valve
2. Anti Cavitation Valve	9. Capacitor
3. Motor Pump	10. Foot Switch
4. Down Function Shuttle Valve	11. Base Slide Assembly
5. Up Function Shuttle Valve	12. Chain Assembly
6. Time Delay Relay	13. Transformer (306-003 100 VAC units only)
7. Down Function Relief Valve	

Figure 1-1. Major Components

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suction and return pressure in the system. This movement opens the reservoir port in the "Down" function shuttle valve (4) to allow fluid to enter the reservoir. During a "Down" function the position of the check balls in the shuttle valves are reversed with the check ball in the "Down" function shuttle valve (4) closed and the "Up" function shuttle valve (5) check ball opened to the reservoir.

Up and Down Function Pressure Relief Valves (7 & 8, Figure 1-1).
The pressure relief valves prevent the hydraulic motor pump from developing too high of pressures that may damage the hydraulic system components, hoses or the motor. The "Up" function pressure relief valve (8, Figure 1-1) opens at 525 - 600 PSI (36.2 - 41.4 BARS). The "Down" function pressure relief valve (7, Figure 1-1) opens at 250 - 325 PSI (17.2 - 22.4 BARS). The valves are preset at the factory and should never be adjusted.

Reservoir Check Valves (Refer to Figures 5-5, 5-6).
The motor pump also contains two internal reservoir check valves, one for the "Up" function side and another for the "Down" function side. These two check valves work together to supply hydraulic fluid to the system and prevent the fluid from returning directly back to the reservoir before the base cylinder is operated.
When the motor pump starts, a suction pressure is created on one of the reservoir check valves depending on which function "Up" or "Down" is being used.
During a "Down" function the "Up" function check valve will open to supply hydraulic fluid to the system. The "Down" function check valve will be closed due to the system pressure and its own internal spring pressure.
During an "Up" function the "Down" check valve will open and the "Up" check valve will be closed.

Base Cylinder Solenoid Valve (1, Figure 1-1).
The base cylinder solenoid valve (1) allows hydraulic fluid to enter, leave or be retained in the area below the piston of the base cylinder. This allows the cylinder rod to be extended, retracted or held in position depending on which function is being performed.
During the "Up" function the solenoid valve is energized and opened. Pressurized fluid is pump into the cavity below the piston causing the piston rod to extend which forces fluid out on the rod end side of the piston back to the reservoir.
During a "Down" function the solenoid valve is energized and opened. Pressurized fluid is pump into the cavity on the rod end side of the piston causing the piston rod to retract and forcing fluid out below the piston back to the reservoir.
As long as the cylinder solenoid valve (1) is not energized it will remain closed, retaining any fluid in the cylinder.

Time Delay Relay (6, Figure 1-1).
The time delay relay (6, Figure 1-1) delays current flow across the coil of the solenoid cylinder valve (1) for 1/10 of a second, causing it to energize 1/10 of a second after the motor pump (3) and anti-cavitation solenoid valve (2) have energized. This allows the motor pump to run and hydraulic fluid pressure to build up before the table cylinder is operated, so the table top will not cavitate.

C. Theory of Operation (See Figures 5-1 thru 5-4 for wiring diagrams and electrical schematics and Figures 5-5 and 5-6 for hydraulic flow diagrams.)

Electrical Power:
Models 306(-001 & -002): 115 VAC line voltage is supplied thru the power cord to terminal board (TB).
Model 306-003: 100 VAC line voltage is supplied thru the power cord to the input taps of the transformer which raises this voltage and supplies 115 VAC to the terminal board (TB). For all models, the foot switch "UP" or "DOWN" pedal must be depressed in order to initiate a function.

Raising Table (Depressing the Table "UP" foot switch).
Depressing the Table "UP" foot pedal actuates the SW1 foot switch which causes the normally closed (N.C.) contacts to open and closes the normally open (N.O.) contacts.
Current can flow thru the SW1 N.O. ***closed*** contacts to the terminal board TB6 terminal to one side of the anti-cavitation solenoid valve (ACV) energizing it to the open position. At the same time current flows through TB7 terminal to T2 connector on the motor pump (M1) energizing the "Up" motor winding. Current also flows thru the capacitor (C1) to T3 connector on the motor pump (M1) energizing the "Down" motor winding. The current to the "Down" winding is out of phase with the current at the "Up" winding causing the motor to rotate in the direction for the "Up" function.
Current that passes thru the capacitor (C1) also flows to the solenoid coil of the base hydraulic cylinder. Due to the time delay relay (TDR), wired in series with the solenoid coil, the solenoid energizes 1/10 of a second

after the motor pump has been running to prevent cavitation of the cylinder. The table top will raise as long as the foot pedal is being depressed or until it reaches maximum height.

Lowering Table (Depressing the Table "DOWN" foot switch).
Depressing the Table "DOWN" foot pedal actuates the SW2 foot switch which causes the normally closed (N.C.) contacts to open and closes the normally open (N.O.) contacts.
Current can flow thru the SW2 N.O. ***closed*** contacts to the terminal board TB8 terminal to T3 connector on the motor pump (M1) energizing the "Down" motor winding. Current also flows thru the capacitor (C1) to T2 connector on the motor pump (M1) energizing the "Up" motor winding. The current to the "Up" winding is out of phase with the current at the "Down" winding causing the motor to rotate in the direction for the "Down" function.
Current that passes thru the capacitor (C1) also flows to the anti-cavitation solenoid valve (ACV) energizing or opening the valve.
Current also flows thru SW1 N.O. closed contacts to TB9 terminal on the terminal board to the solenoid coil of the base hydraulic cylinder. Due to the time delay relay (TDR), wired in series with the solenoid coil, the solenoid energizes 1/10 of a second after the motor pump has been running to prevent cavitation of the cylinder. The table top will lower as long as the foot pedal is being depressed or until it reaches minimum height.

1.4 Standard Torque Specifications

The following standard torque specifications in Table 1-1 apply to the various hardware used on the units unless otherwise listed elsewhere in service procedures or parts illustrations:

Table 1-1. Torque Specifications

Hardware Size	Torque Values
#6	11 to 21 inch / lbs. (1.2 to 2.3 N•M)
#8	20 to 30 inch / lbs. (2.2 to 3.3 N•M)
#10	32 to 42 inch / lbs. (3.6 to 4.8 N•M)
1/4"	75 to 85 inch / lbs. (8.5 to 9.6 N•M)
5/16"	18 to 22 foot / lbs. (24.4 to 29.8 N•M)
3/8"	31 to 35 foot / lbs. (42.0 to 47.5 N•M)
1/2"	50 to 60 foot / lbs. (67.8 to 81.4 N•M)

1.5 Specifications

Factual data for the 306 Power Examination Table is provided in Table 1-1. Also, see Figure 1-2.

Table 1-1. Specifications

Description	Data
Weight:	
Without Shipping Carton	367 lb (166.5 kg)
With Shipping Carton	450 lb (204.0 kg)
Shipping Carton	76 in. "L" x 30 in. "W" x 38.5 in. "H" (193.0 cm x 76.2 cm x 97.8 cm)
Dimensions (See Figure 1-2):	
Table Top Length	72 in. (182.9 cm)
Table Top Width	24.0 in. (60.9 cm) wide tapered to 16 in. (40.6 cm) wide at the head end.
Table Positioning (Adjustable):	
Table Top Height	22.5 in. (66 cm) to 38.5 in. (97.8 cm)
Patient Weight Capacity (Maximum)	325 lb (147.4 kg)
Oil Used In Hydraulic System	light grade medicinal mineral oil
Hydraulic System	
Oil Capacity	Approx. 2.5 quarts (2.4 liters)
Motor Pump Reservoir Capacity	1 quart (.946 liter)
Electrical Requirements:	
100 VAC Unit	100 VAC, 60 HZ, 13 amp, single phase
115 VAC Unit	100-120 VAC, 60HZ, 12 amp, single phase
Recommended Circuit:	A separate (dedicated) circuit is recommended for this table. The table *should not* be connected to an electrical circuit with other appliances or equipment unless the circuit is rated for the additional load.
Up Function Relief Valve Setting	Valve opens at 525 to 600 PSI (36.2 to 41.4 BARS)
Down Function Relief Valve Setting	Valve opens at 250 to 325 PSI (17.2 to 22.4 BARS)

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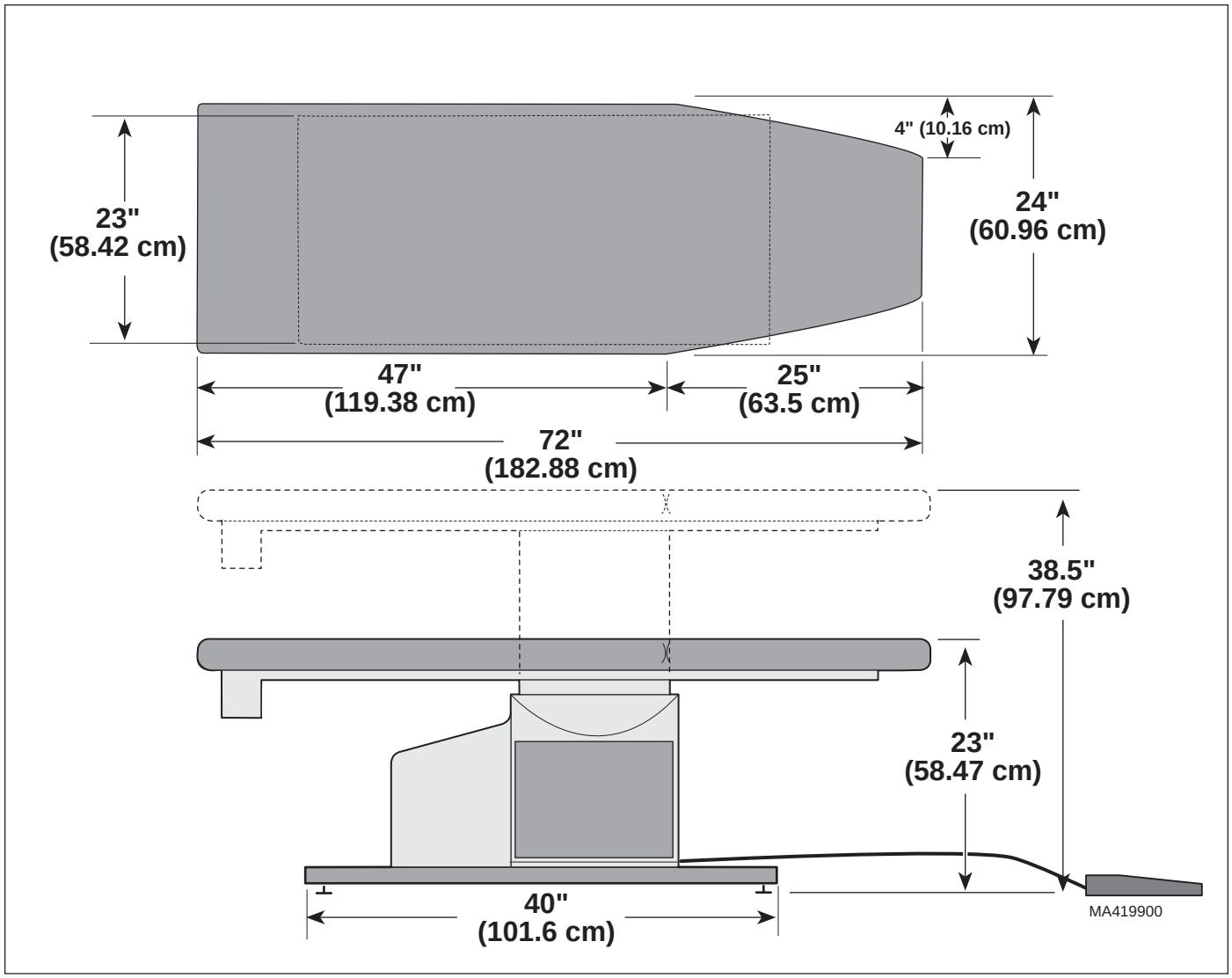

Figure 1-2. Specifications

1.6 Parts Replacement Ordering

If a part replacement is required, order the part directly from the factory as follows:

NOTE
It is ***important*** that the ***entire*** Model ***and*** Serial Number be presented when ordering parts, scheduling a service call or seeking technical advice.

(1) Refer to Figure 1-3 to determine the location of the model number and serial number of the table and record this data.

(2) Refer to the Parts List to determine the item numbers of the parts, part numbers of the parts, descriptions of the parts, and quantities of parts needed and record this data (Refer to para 6.1).

NOTE
Ask the Purchasing Department of the company that owns the table for this information. Otherwise, this information may be obtained from the dealer that sold the table.

(3) Determine the installation date of the table and record this data.

(4) Call Midmark with the recorded information and ask for the Medical Products Technical Services Department (See back cover of this manual for the phone number) or use the Fax Order Form (See page 7-2 for Fax Order Form).

1.7 Special Tools

Table 1-2 lists all of the special tools needed to repair the table, how to obtain the special tools, and the purpose of each special tool.

Description of Special Tool	Manufacturer's Name / Address / Phone	Manufacturer's Part Number	Purpose of Special Tool
Multimeter	Commercially Available	Any Type	Used to perform continuity and voltage checks.
Torque Wrench	Commercially Available	Any Type	Used to tighten nuts or screws to specified values.

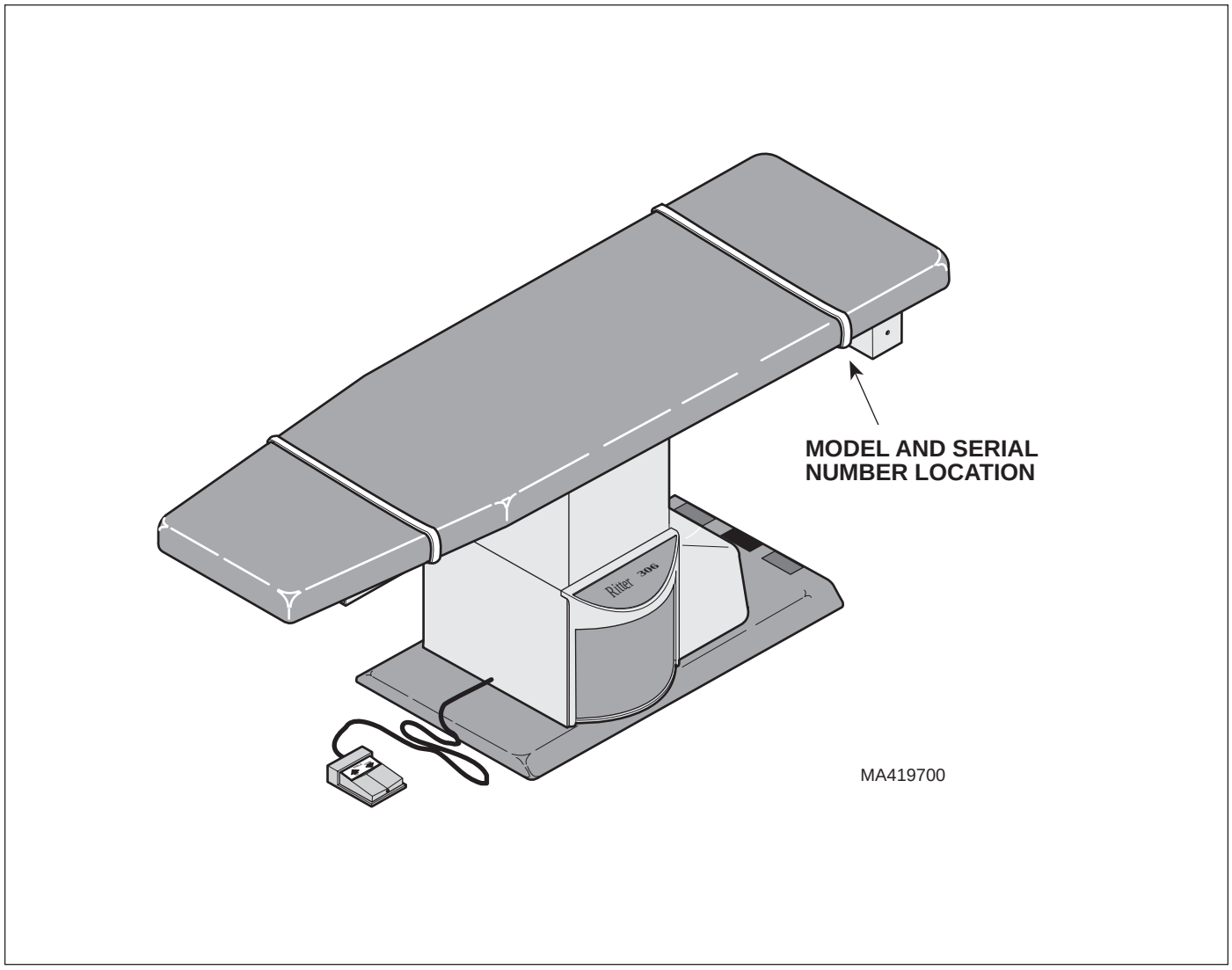

Figure 1-3. Model / Serial Number Location

SECTION II
TESTING AND TROUBLESHOOTING

2.1 Operational Test

In order to effectively diagnose the malfunction of the table, it may be necessary to perform an operational test as follows:

DANGER
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
The Operational Test, for the most part, only describes what should happen when the table is operated. If the table does something other than described, a problem has been discovered. Refer to the Troubleshooting Guide to determine the cause of the problem and its correction.

(1) Plug the table into a grounded, non-isolated, correctly polarized outlet that has the proper voltage output for the table.

(2) Operate the TABLE "UP" foot switch.

Observe. The table top should elevate smoothly without jerky motions from a low of 22.5 inches (57.2 cm) minimum to a maximum of 38.5 inches (97.8 cm).

(3) Operate the TABLE "DOWN" foot switch.

Observe. The table should descend smoothly and without jerky motions.

(4) Place approximately 200 lbs. (90.7 kg.) on the table top and elevate the table to maximum height.

Observe. The table should hold firmly in place without drifting down.

2.2 Troubleshooting Procedures

Table 2-1 is a Troubleshooting Guide which is used to determine the cause of the malfunction.

Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Table UP and DOWN functions do not work.	Motor / Pump or solenoids do not operate.	Table is not plugged into a wall outlet.	Check to insure table is plugged into a wall outlet.	Plug table into a wall outlet.
		Wall outlet is not powered	Check circuit breaker and / or fuse for suspected wall outlet.	Replace fuse or reset circuit breaker if necessary.
		Table power cord has broken wires or loose connections at terminal board (TB1) terminals 1 or 4.	Check for loose connections at the table terminal board, terminals 1 and 4, and check the continuity of the wires in the power cord.	Replace the power cord or repair the loose connection at the terminal board. Refer to para 5.1.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Table UP and DOWN functions do not work. - Continued	Motor / Pump or solenoids do not operate. - Continued	Red, white and/or black wires in cord between footswitch and terminal board (TB1) are broken.	Check continuity of red, white and black wires of foot switch cord.	Replace the cord between the footswitch and terminal board. Refer to para 5.1.
		Microswitches (SW1 and SW2) in footswitch malfunctioning.	Check continuity of SW1 and SW2 microswitches normally closed (N.C.) and normally open (N.O.) contacts in the operated and unoperated positions.	Adjust or replace malfunctioning microswitches. Refer to para 4.16.
		Transformer malfunc-tioning (applies to 307-003, 100 VAC units only).	Check for 115 VAC at terminal block.	Replace transformer. Refer to para 4.18.
		Line fuse (located in appliance inlet) is blown (applies to 306-003, 100 VAC units only).	Perform continuity check on line fuse.	Replace line fuse. Refer to para 4.19.
		AC inlet is malfunctoning (applies to 306-003, 100 VAC units only).	Perform continuity check on AC inlet.	Replace AC inlet. Refer to para 4.20.
	Motor / Pump does not run. Anti-cavitation and cylinder solenoids operate.	Capacitor is blown, has a loose connection or broken lead (white / black) (motor pump may be humming).	Check connections and leads and visually inspect the capacitor for damage. Substitute a known good capacitor for suspected bad capacitor.	Repair or replace leads or connectors. Replace capacitor. Refer to para 4.13.
		Motor thermal overload switch has opened due to overheated motor pump.	Check for continuity of motor windings between yellow to blue and between yellow and red motor leads. A certain resistance reading should be visible on the meter.	Allow motor pump to cool 15 to 20 minutes and then try to operate table. If motor pump does not run now, replace motor pump. Refer to para 4.9 or 5.1.
		Blue wire from motor / pump broken or disconnected from capacitor (C1).	Check continuity of the blue wire coming out of the motor / pump and check the connection at the capacitor (C1).	Repair the blue wire or replace the motor / pump. Refer to para 5.1. Motor / pump is locked up or burned out.
		Motor / pump is locked up or burned out.	Check for excessive or locked rotor amp draw on motor. Check for grounded or open windings on motor.	Replace motor / pump. Refer to para 4.9.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Table UP or DOWN functions do not work (continued).	Motor pump does not run. Anti-Cavitation and cylinder solenoids operate (continued).	Wire connections loose.	Check all wire connections from terminal block to motor pump. Use multimeter to check for proper voltage levels.	Ckean any dirty connections. Tighten any loose connections. Replace any damaged connections.
	Motor pump runs but table top does not move. Anti-cavitation valve energizes. Hydraulic base cylinder solenoid does not energize.	Time delay relay is malfunctioning.	Use a jumper wire across the terminals of the Time Delay Relay to bypass the relay. If table top operates, time delay relay is malfunctioning.	Replace time delay relay. Refer to para 4.12.
		Up and / or Down function shuttle valve(s) are malfunctioning.	Inspect both shuttle valves for dirt or malfunction.	Clean or replace malfunctioning shuttle valve(s). Refer to paras. 4.4 and 4.5.
		Hydraulic base cylinder solenoid valve has an open winding in the solenoid coil.	Check continuity of cylinder solenoid valve coil. A resistance reading of approximately 30 ohms should be present.	If the coil shows an open winding replace the hydraulic base cylinder assembly. Refer to para 4.11.
		Hydraulic base cylinder solenoid valve lead is broken or disconnected from terminal block.	Check continuity of cylinder solenoid leads and for loose connections at terminal board TB3 or TB6.	Repair loose connections at terminal board or replace hydraulic cylinder if leads are broken. Refer to para 4.11.
	Motor pump runs but table top does not move. Anti-cavitation valve and cylinder solenoids energize. Motor is excessively noisy.	Hydraulic system is low on mineral oil.	Check oil level in reservoir.	If necessary, add oil to reservoir. Refer to para 4.3.
		Suction valves in motor pump clogged with debris not allowing fluid to flow thru the system.	Check for fluid flow in lines at the hydraulic solenoid valves.	Remove reservoir and clean any debris from ports of suction valves. Refer to paras 4.9 and 4.10.
		Pump impeller broken loose from motor shaft.	Remove reservoir and inspect pump impeller.	Repair or replace motor pump. Refer to para 4.9.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
The TABLE UP function does not work, but TABLE DOWN function works.	Motor pump runs during an UP function, but table does not move. Cylinder solenoid energizes (audible click).	Anti-cavitation solenoid valve is malfunctioning.	Check for slight magnetism on bottom side of anti-cavitation solenoid valve, indicating solenoid is not burned out. Check connections TB3 and TB6 on terminal block and for broken leads from the solenoid.	Repair loose or defective connections or replace anti-cavitation solenoid valve. REefer to para 4.6.
		UP function shuttle valve is malfunctioning.	Check to see if check ball is loose in UP function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace UP function shuttle valve. Refer to para 4.4.
	Motor / pump does not run when the UP function foot pedal is depressed, but does when a DOWN function foot pedal is depressed.	Wire connection in foot control UP (SW1) microswitch disconnected on switch at C or NO terminals.	Check all wiring connections in foot control.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections. Refer to para 5.1.
		Foot control UP (SW1) microswitch out of adjustment.	Check continuity of C - NO and C - NC contacts of SW1 microswitch in the operated position.	Adjust the UP (SW1) microswitch. Refer to para 4.16.
		Foot control UP (SW1) microswitch contacts C - NO will not close.	Check continuity of C - NO and C - NC contacts of SW1 microswitch in the operated position.	Replace the UP (SW1) microswitch. Refer to para 4.16.
TABLE DOWN does not work. TABLE UP works.	Motor pump runs when a DOWN function foot pedal is depressed. Table top does not move.	Down function shuttle valve is malfunctioning.	Check to see if check ball is loose in down function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace down function shuttle valve. Refer to para 4.5.
The TABLE DOWN does not work. TABLE UP works.	Motor pump does not run when a DOWN function foot pedal is depressed, but runs during an UP function.	Wire connection in foot control DOWN (SW2) microswitch disconnected on switch at C or NO terminals.	Check all wiring connections in foot control.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections. Refer to para 5.1.
		Foot control DOWN (SW2) microswitch contacts C-NO will not close.	Check continuity of C-NO and C-NC contacts of SW2 microswitch in the operated position.	Replace the DOWN (SW2) microswitch. Refer to para 4.16.
		Foot control DOWN (SW2) microswitch out of adjustment.	Check continuity of C-NO and C-NC contacts of SW2 microswitch in the operated position.	Adjust the DOWN (SW2) microswitch. Refer to para 4.16.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Motor shuts off intermittently.	After a short period of operation, the motor / pump shuts off. The cylinder solenoid vlave and anti-cavitation valve continue to operate normally.	Motor pump is overheating due to operator running table up and down continuously. Motor over-load (O/L) protector is opening. Motor is an intermittent operational motor.	Check to assure table is being operated properly.	Instruct users on correct operation.
		Capacitor (C1) is weak causing excessive amp draw and over-heating on motor / pump. Motor over-load (O/L) protector is opening.	Substitute a known good capacitor with the same microfarad and voltage rating.	Replace the capactior. Refer to para 4.13.
		Low supply voltage causing excessive amp draw and over-heating of motor.	Using a VOM check the voltage at the terminal board, terminals TB1 and TB4 while raising the table top.	If lower than normal voltage is present inform the operator to contact the Power Company.
Table drifts down.	Table raises and lowers normally but will not hold position.	Dirt particles in cylinder valve or faulty valve.	Operate cylinder by extending and retracting the cylinder about ten (10) times to attempt to flush any dirt particles from valve seat.	If flushing of cylinder did not work and cylinder keeps drifting, replace the cylinder. Refer to para 4.11.
		Cylinder, hydraulic hoses, or connections leaking hydraulic fluid.	Check for hydraulic leaks in system.	Repair or replace any components that are leaking. Recheck hydrauslic fluid level in reservoir. Refer to para 4.3.
Table is noisy during operation.	As table raises or lowers a scrapping or squealing noise is heard.	Lower shrouds mis-aligned.	Observe the lower shrouds as the table raises and lowers.	Re-align the lower shrouds if they interfere with each other.
		Dry bearing surfaces on the scissors frame of the table.	Check for lubrication on the bearing surfaces of the scissor frame.	Lubricate the bearing surfaces with a light grade machine oil.
Table moves fine for light patient, but will not move or moves slowly for very heavy patient.	Occurs for both the UP and DOWN functions.	Hydraulic system is low on mineral oil.	Check oil level in reservoir.	If necessary, add oil to reservoir. Refer to para 4.3.
		UP and DOWN function relief valves are malfunctioning.	Replace suspect relief valve(s) with known working relief valve(s).	Replace UP function and/or DOWN function relief valve(s). Refer to paras 4.7 and 4.8.
		Capacitor on Motor / Pump is weak.	Replace Motor / Pump capacitor with known good capacitor of the same rating.	Replace Motor / Pump capacitor. Refer to para 4.13.
	Occurs for UP function only.	UP functions relief valve is malfunctioning.	Replace suspect UP function relief valve with known working relief valve.	Replace UP function relief valve . Refer to para 4.7.

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Table moves fine for light patient, but will not moove or moves slowly for very heavy patient (continued).	Occurs for DOWN function only.	DOWN function relief valve is malfunctioning.	Replace suspect DOWN function relief valve with known working relief valve.	Replace DOWN function relief valve. Refer to para 4.8.
Excessive sideways play of table top.	Table is not stable and can be moved from side to side.	Chain assemblies are loose.	Check tension of chain assemblies.	Adjust tension of chain assemblies. Refer to para 4.14.
		Base slide assembly is worn or deformed.	Check condition of base slide assembly.	Replace base slide assembly. Refer to para 4.15.

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SECTION III
SCHEDULED MAINTENANCE

3.1 Scheduled Maintenance

Table 3-1 is a Scheduled Maintenance Chart which lists the inspections and services that should be performed periodically on the table. These inspections and services should be performed as often as indicated in the chart.

Table 3-1. Scheduled Maintenance Chart

Interval	Inspection or Service	What to Do
Semi-annually	Obvious damage	Visually check condition of table for obvious damage such as: cracks in components, missing components, dents in components, leaking oil, or any other visible damage which would cause table to be unsafe to operate or would compromise its performance. Repair table as necessary.
	Fasteners/hardware	Check table for missing or loose fasteners/hardware. Replace any missing hardware and tighten any loose hardware as necessary.
	Warning and instructional decals	Check for missing or illegible decals. Replace decals as necessary.
	Pivot points/moving parts/accessories	Lubricate all exposed pivot points, moving parts, and accessories with silicone based lubricant.
	Hydraulic hoses and fittings	Check all hydraulic hoses and fittings for leaks. Replace any components causing leaks. Replace any hoses which have kinks, cuts, holes, or other damage.
	Foot control	Check that foot control works correctly. Make sure foot pedals contact switch properly.
	Hydraulic functions	Check that the hydraulic functions operate properly. If not, refer to the Troubleshooting Guide to determine the cause of the problem. Clean or replace components as necessary.
	Hydraulic Cylinder	Inspect the cylinder for signs of internal leaking or for weak operation. Replace the cylinder as necessary.
	Drift in table	Check the cylinder to see if it drifts. Replace the cylinder if necessary.
	Oil level	Check oil level in motor pump. Add oil to motor pump if necessary. Refer to para 4.3.
	Excessive sideways play of table top	Check that table top does not have excessive side play. Adjust chain assembly if necessary. Refer to para 4.14.
	Anti-cavitation solenoid valve	Check to see if table section may be lifted by hand or if the table function drifts by itself. If so, replace anti-cavitation solenoid valve. Refer to para 4.6.
	Upholstery	Check the upholstery for rips, tears, or excessive wear. Replace as necessary.
	Accessories	Check that all accessories have all of their components and that they function properly. If necessary, repair or replace the accessory.
	Operational Test	Perform an Operational Test to determine if the table is operating within its specifications (Refer to para 2.1). Replace or adjust any malfunctioning components.

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SECTION IV
MAINTENANCE / SERVICE INSTRUCTIONS

4.1 Introduction

DANGER
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
Perform an operational test on the table after the repair is completed to confirm the repair was properly made and that *all* malfunctions were repaired.

The following paragraphs contain removal, installation, repair, and adjustment procedures for the table.

4.2 Motor Cover Assembly Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove six screws (1, Figure 4-1) and motor cover assembly (2) from back outer shroud (3).

B. Installation

(1) Install motor cover assembly (2, Figure 4-1) against back outer shroud (3) and secure with six screws (1), making sure top edge of motor cover assembly is inserted behind lip (A) of back outer shroud (3).

(2) Plug table power cord into outlet.

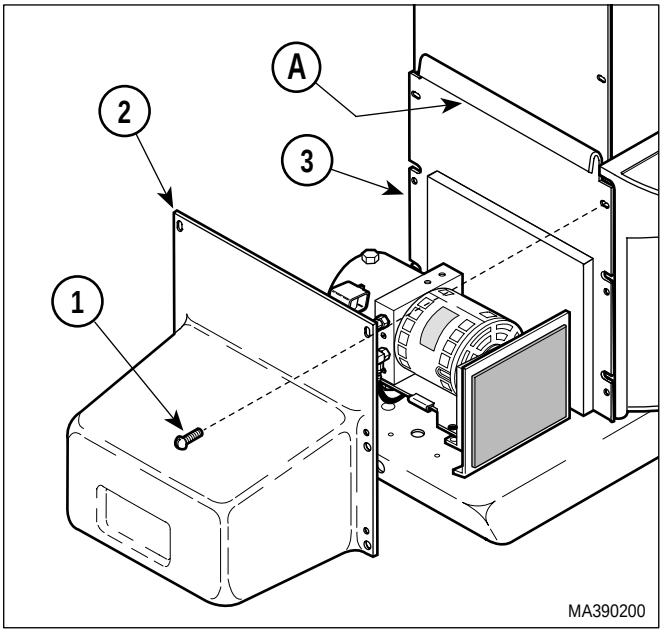

Figure 4-1. Motor Cover Assembly Removal / Installation

4.3 Checking / Adding Oil To Motor Pump

A. Checking / Adding Oil

(1) Move the TABLE DOWN function all the way down.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove filler cap (1, Figure 4-2) from motor pump (2).

NOTE
Newer models do not have oil level check hole (A) or screw (3). Check oil level at fill port.

(4) Remove screw (3) and gasket (4) from motor pump (2).

(5) Check oil level. If oil level in reservoir is not even with oil level check hole (A), oil must be added.

(6) Place a rag under oil level check hole (A).

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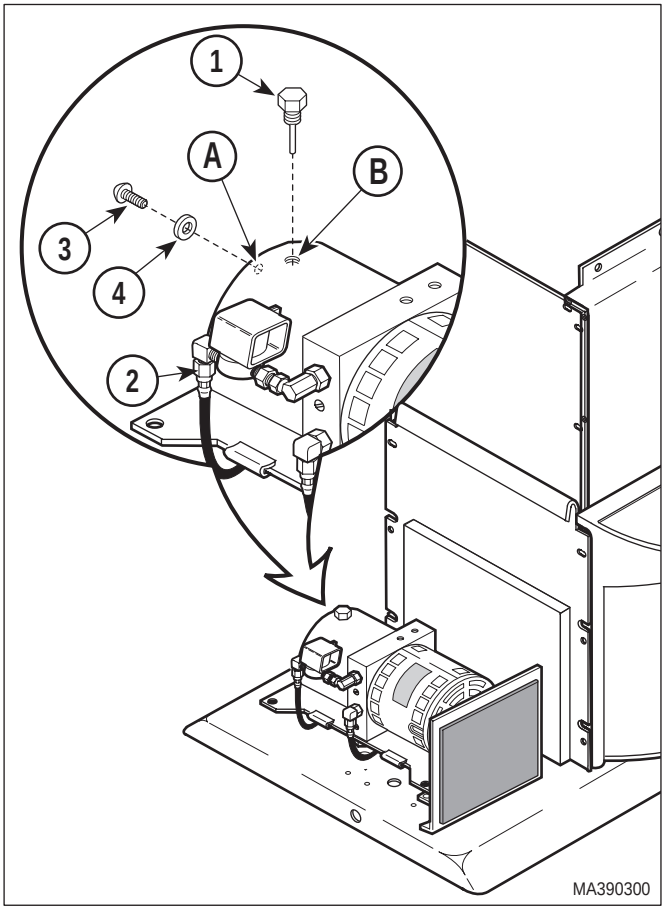

Figure 4-2. Checking / Adding Oil To Motor Pump

CAUTION
Hydraulic system is designed for use with light grade mineral oil only. Failure to comply could result in hydraulic system failure.

(7) Add oil to fill hole (B) until oil starts to run out of oil level check hole (A).

(8) Install gasket (4) and screw (3) on motor pump (2).

(9) Install filler cap (1) on motor pump (2).

(10) Move the TABLE function to its UP and DOWN limit several times. Then repeat steps 1 thru 9.

(11) Install motor cover assembly (Refer to para 4.2).

(12) Dispose of used oil in accordance with local regulations.

4.4 UP Function Shuttle Valve Removal / Installation

A. Removal

DANGER
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove motor cover (Refer to para 4.2).

NOTE
The UP function shuttle valve is lower than the oil level in the motor pump reservoir and oil will flow out of the shuttle valve once the hose assembly is disconnected.

(3) Place a drain pan (1, Figure 4-3) under the UP function shuttle valve (2).

(4) Disconnect the hose assembly (3) from the elbow (A) of the UP function shuttle valve (2).

(5) Remove the UP function shuttle valve (2) from the motor pump (4).

B. Installation

(1) Coat the two o-rings (B, Figure 4-3) on the UP function shuttle valve (2) with mineral oil.

(2) Install the UP function shuttle valve (2) in the motor pump (4).

(3) Connect the hose assembly (3) to the elbow (A) of the UP function shuttle valve (1).

(4) If necessary, add oil to the motor pump (Refer to para 4.3).

(5) Install the motor cover assembly (Refer to para 4.2).

(6) Plug the table power cord into an outlet.

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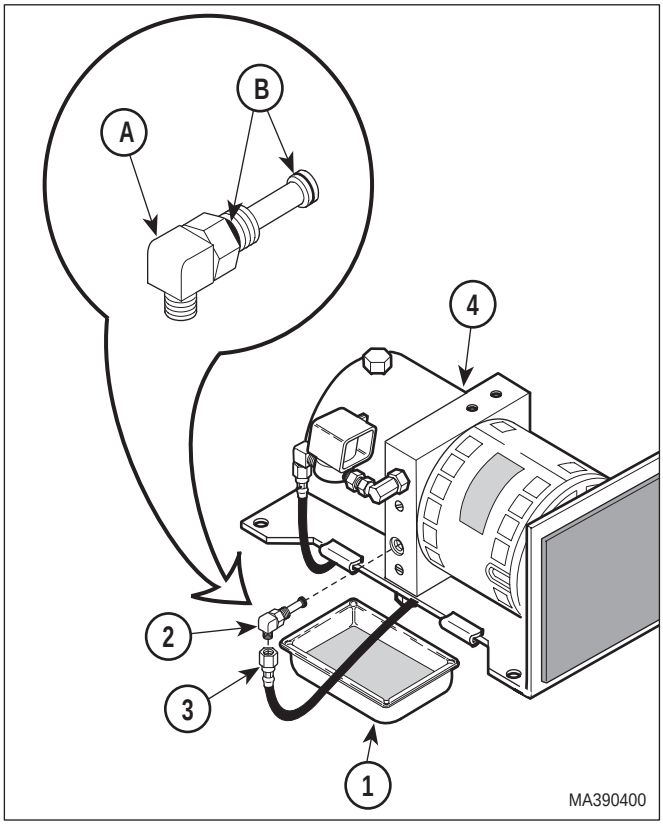

Figure 4-3. Up Function Shuttle Valve Removal / Installation

(7) Dispose of used oil in accordance with local regulations.

4.5 Down Function Shuttle Valve Removal / Installation

A. Removal

DANGER

Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove the motor cover assembly (Refer to para 4.2).

NOTE

The DOWN function shuttle valve is slightly lower than the oil level in the motor pump reservoir and oil will flow out of the shuttle valve once the hose assembly is disconnected.

(3) Place rags or a drain pan (1, Figure 4-4) under the DOWN function shuttle valve (2)

(4) Using a wrench to hold male connector (3) stationary, loosen the jam nut (A) of the elbow (4). Disconnect the elbow (4) from male connector (3).

(5) Remove elbow (4) from the DOWN function shuttle valve (2).

(6) Remove the DOWN function shuttle valve (2) from motor pump (5).

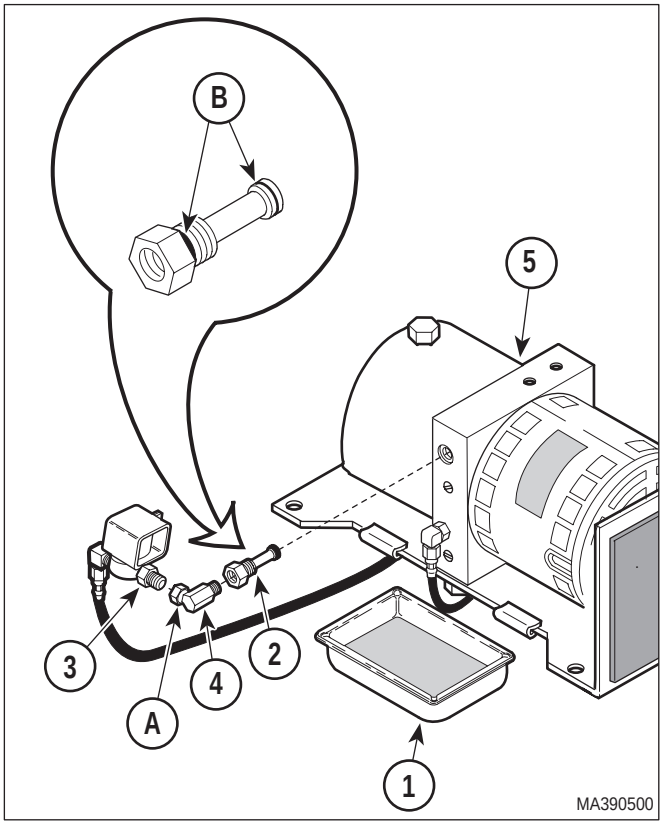

Figure 4-4. Down Functions Shuttle Valve Removal / Installation

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B. Installation

NOTE
The DOWN function shuttle valve is sent from the factory with an elbow installed on it. Remove the elbow per step 1.

(1) Remove and discard the elbow from the DOWN function shuttle valve (2).

(2) Coat the two o-rings (B) on the DOWN function shuttle valve (2) with mineral oil.

(3) Install the DOWN function shuttle valve (2) in the motor pump (5).

(4) Coat the threads of the male connector (3) and elbow (4) with pipe thread tape or sealant.

(5) Install the elbow (4) on the DOWN function shuttle valve (2).

(6) Connect the elbow (4) to the male connector (3) securing it by tightening the jam nut (A).

(7) If necessary, add oil to motor pump (Refer to para 4.3).

(8) Install motor cover assembly (Refer to para 4.2).

(9) Plug table power cord into outlet.

(10) Dispose of used oil in accordance with local regulations.

4.6 Anti-Cavitation Solenoid Valve Removal / Installation

A. Removal

(1) Unplug the table power cord from outlet.

(2) Remove the motor cover assembly (Refer to para 4.2).

(3) Disconnect the anti-cavitation solenoid valve wires (1, Figure 4-5) from the terminal block (2) and pull them out thru the wire hole in the control panel.

(4) Disconnect hose assembly (3) from elbow (4).

(5) Using a wrench to hold male connector (5) stationary, loosen jam nut (A) of the elbow (6). Disconnect male connector (5) from elbow (6).

(6) Remove the elbow (6) and male connector (5) from anti-cavitation solenoid valve (7).

B. Installation

CAUTION
Do not coat last two threads of elbow and male connector with teflon tape or sealant. Otherwise, little particles of the tape / sealant can break loose and can contaminate hydraulic system.

(1) Coat the threads of the elbow (4, Figure 4-5) and male connector (5) with pipe thread tape or sealant and install them on the anti-cavitation solenoid valve (7).

(2) Connect the hose assembly (3) to the elbow (4).

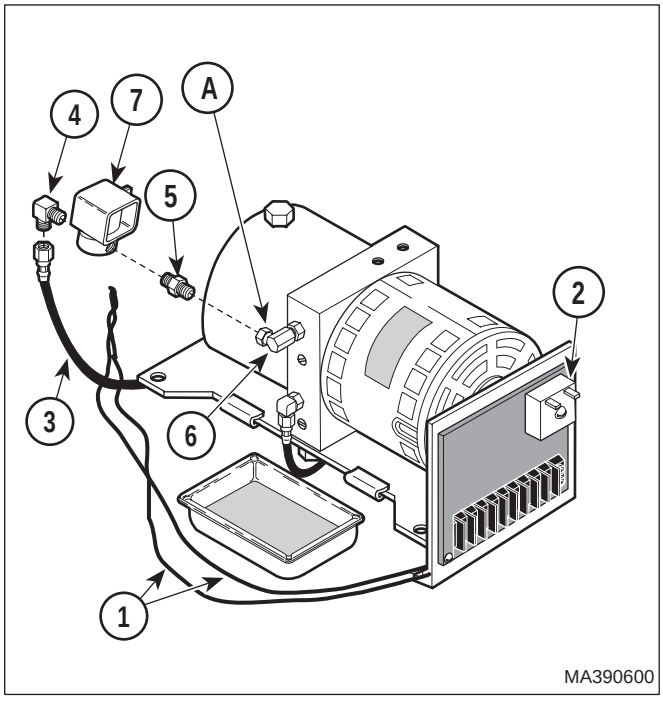

Figure 4-5. Anti-cavitation Solenoid Valve Removal / Installation

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(3) Coat the threads of the male connector (5) with pipe thread tape or sealant.

(4) Connect the elbow (6) to the male connector (5) and secure by tightening the jam nut (A).

(5) Connect the two anti-cavitation solenoid valve wires (1) to the terminal block (2).

(6) Install the motor cover assembly (Refer to para 4.2).

(7) Plug the table power cord into outlet.

4.7 Up Function Relief Valve Removal / Installation

A. Removal

(1) If possible, raise TABLE UP function all the way up.

(2) Unplug the table power cord from outlet.

(3) Remove the motor cover assembly (Refer to para 4.2).

(4) Remove the four screws (1, Figure 4-6) and the back outer shroud (2) from the left and right hand outer shrouds (3).

(5) If necessary, for better access, remove the eight screws (4) and the back inner shroud (5) from the left and right hand inner shrouds (6).

NOTE
Oil will flow out of relief valve port when the UP function relief valve is removed. Place a drain pan under the relief valve port to catch any oil that may spill.

(6) Remove the UP function relief valve (7) from the motor pump (8).

B. Installation

(1) Coat the two o-rings (A, Figure 4-6) on the UP function relief valve (7) with mineral oil.

CAUTION
Make sure the relief valve has **"600"** stamped on its hex head; it ***must not*** be stamped **"L2"**. Failure to install the proper relief valve will result in faulty table performance.

(2) Install the UP function relief valve (7) in the motor pump (8).

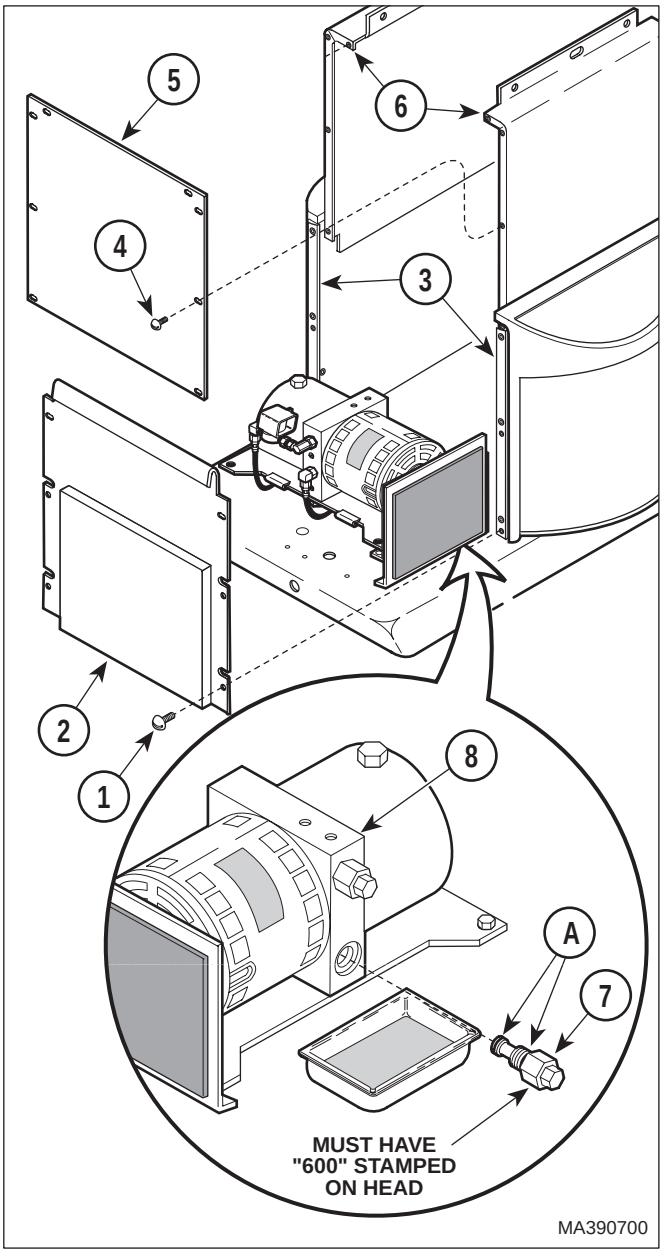

Figure 4-6. Up Function Relief Valve Removal / Installation

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(3) If removed, install the back inner shroud (5) on the left and right inner shrouds (6) and secure with eight screws (4).

(4) Install the back outer shroud (2) on the left and right hand outer shrouds (3) and secure with four screws (1).

(5) If necessary, add oil to motor pump (Refer to para 4.3).

(6) Install motor cover assembly (Refer to para 4.2).

(7) Plug table power cord into receptacle.

(8) Dispose of used oil in accordance with local regulations.

4.8 Down Function Relief Valve Removal / Installation

A. Removal

(1) Unplug the table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove the four screws (1, Figure 4-7) and the back outer shroud (2) from the left and right hand outer shrouds (3).

(4) If necessary, for better access, remove the eight screws (4) and back inner shroud (5) from the left and right hand inner shrouds (6).

NOTE
Oil will flow out of the relief valve port when the DOWN function relief valve is removed. Place a drain pan under the relief valve port to catch any oil that may spill.

(5) Remove the DOWN function relief valve (7) from the motor pump (8).

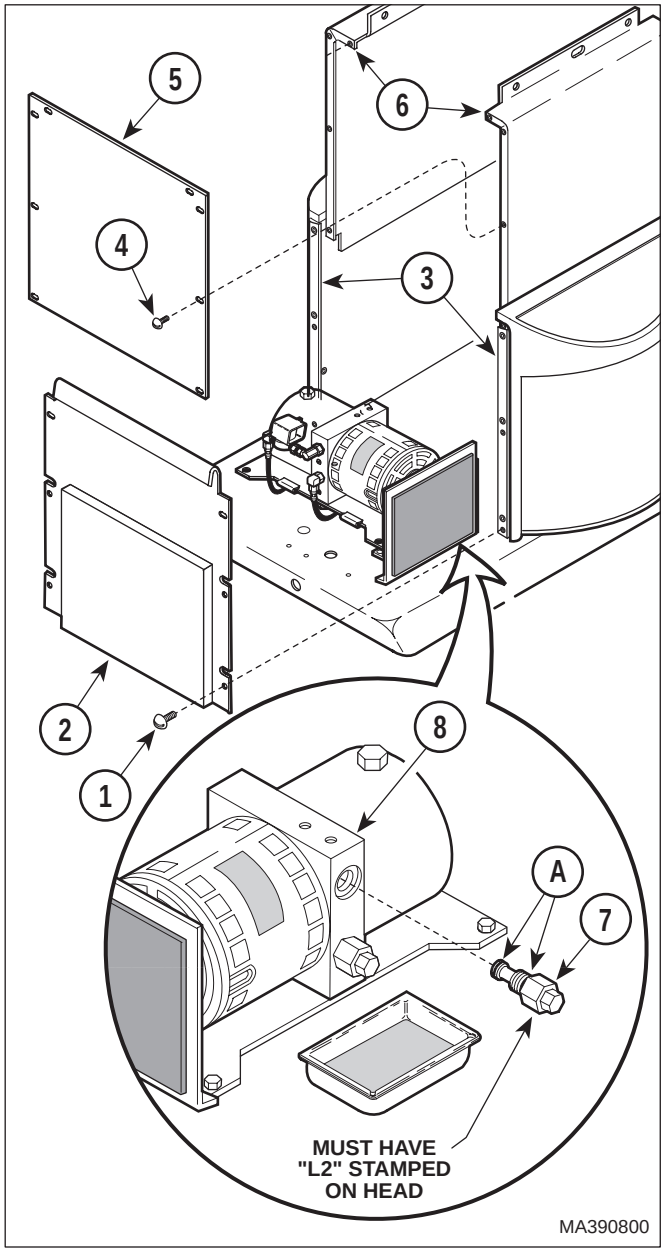

Figure 4-7. Down Function Relief Valve Removal / Installation

B. Installation

(1) Coat the two o-rings (A, Figure 4-7) on the DOWN function relief valve (7) with mineral oil.

CAUTION
Make sure relief valve has **"L2"** stamped on its hex head; it ***must not*** be stamped **"600"**. Failure to install proper relief valve will result in faulty table performance.

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(2) Install the DOWN function relief valve (7) in the motor pump (8).

(3) If removed, install the back inner shroud (5) on the left and right inner shrouds (6) and secure with eight screws (4).

(4) Install the back outer shroud (2) on the left and right hand outer shrouds (3) and secure with four screws (1).

(5) If necessary, add oil to motor pump (Refer to para 4.3).

(6) Install motor cover assembly (Refer to para 4.2).

(7) Plug the table power cord into receptacle.

(8) Dispose of used oil in accordance with local regulations.

4.9 Motor Pump Assembly Removal / Installation

A. Removal

(1) Unplug the table power cord from outlet.

(2) Remove the motor cover assembly (Refer to para 4.2).

(3) Remove the four screws (1, Figure 4-8) and the back outer shroud (2) from the left and right hand outer shrouds (3).

(4) Tag; then disconnect the motor pump and anti-cavitation leads (4) from the terminal block (5).

(5) Remove the four nuts (6) from the four motor mounts (7).

(6) Disconnect the hose assembly (8) from the male elbow (9).

(7) Place a drain pan under the elbow (10) and disconnect the hose assembly (11).

(8) Remove the motor pump assembly (12) from the four motor mounts (7).

(9) Remove the filler cap (1, Figure 4-9) and drain any remaining oil into the drain pan.

(10) Using a wrench to hold the male connector (A) stationary, loosen the jam nut (B) of the elbow (2) and disconnect the male connector (A) and anti-cavitation solenoid valve (3).

(11) Remove the two screws (4), lockwashers (5), and motor base (6) from the motor pump (7).

B. Installation

(1) Install the motor base (6, Figure 4-9) on the motor pump (7) and secure with two lockwashers (5) and screws (4).

(2) Coat the threads of the male connector (A) with pipe thread tape or sealant.

(3) Connect the male connector (A) and the anti-cavitation solenoid valve (3) to the elbow (2) and tighten the jam nut (B).

(4) Install the motor pump assembly (12, Figure 4-8) on the four motor mounts (7) and secure with four nuts (6).

(5) Connect the hose assembly (11) to the elbow (12).

(6) Connect the hose assembly (8) to the male elbow (9).

(7) Connect the anti-cavitation solenoid valve and motor pump leads (4) to the terminal block (5).

(8) Install the back outer shroud (2) on the left and right hand outer shrouds (3) and secure with four screws (1).

(9) Add oil to the motor pump (Refer to para 4.3).

(10) Install the motor cover assembly (Refer to para 4.2).

(11) Plug the table power cord into outlet.

(12) Dispose of used oil in accordance with local regulations.

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SECTION IV
MAINTENANCE / SERVICE

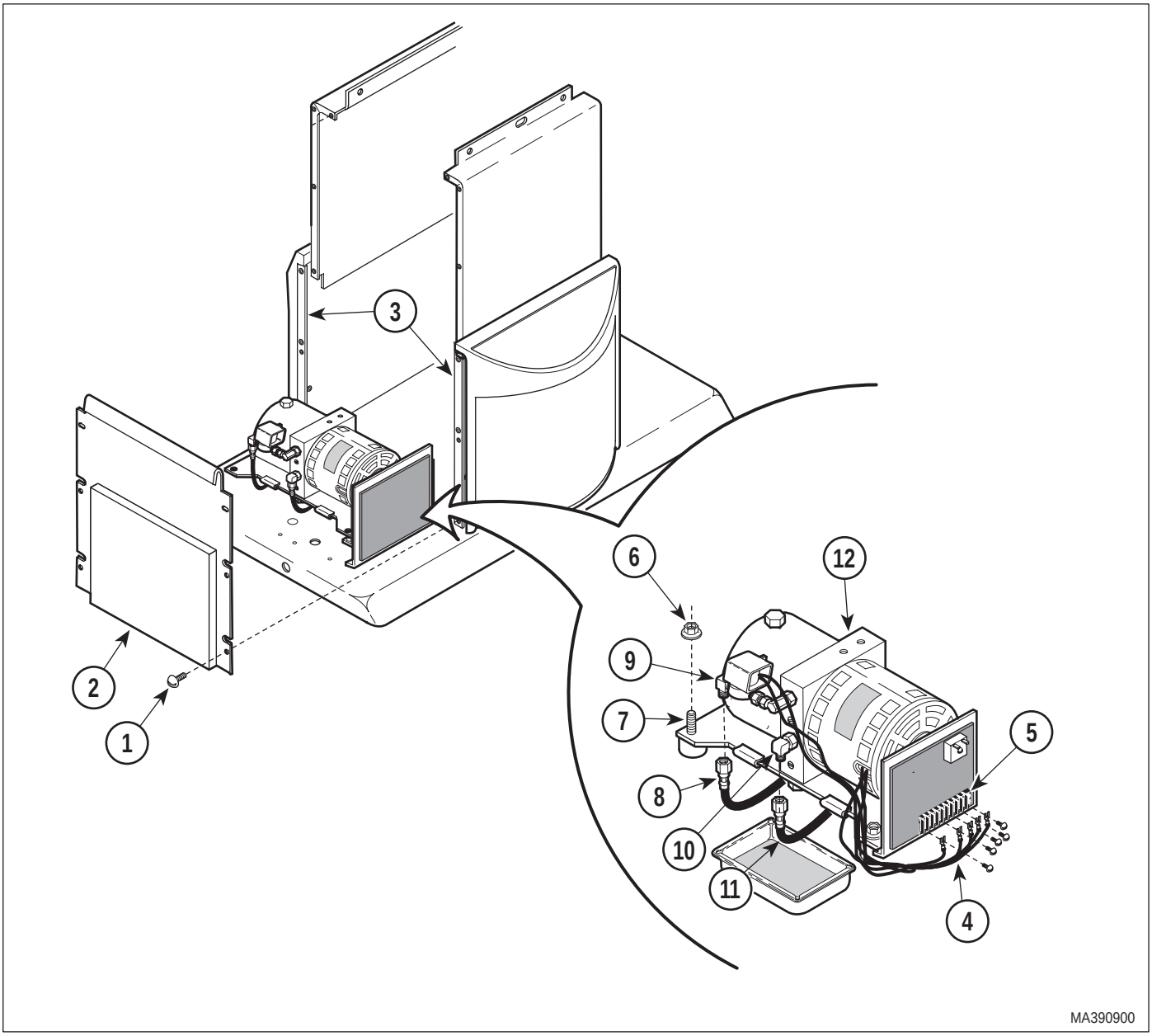

Figure 4-8. Motor Pump Assembly - Complete Removal / Installation

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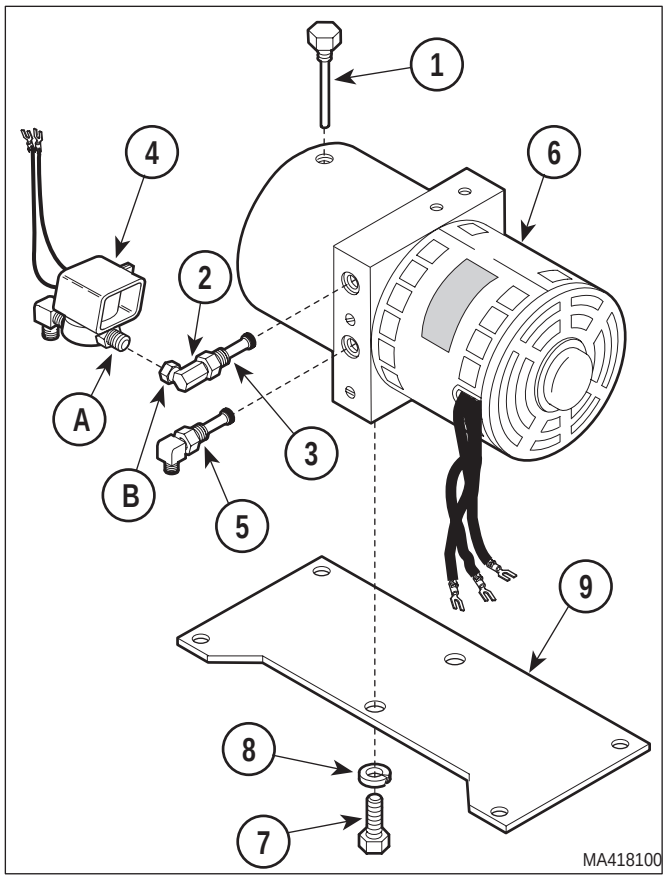

Figure 4-9 Motor Pump Removal / Installation

4.10 Motor Shaft Seal Removal / Installation.

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor pump (Refer to para 4.9).

NOTE
Reservoir will come off hard. Use a screwdriver to pry reservoir off manifold block, but make sure not to damage the reservoir seal o-ring (1, Figure 4-10).

(3) Remove the four screws (2, Figure 4-10) and the reservoir (3) from the manifold block (4).

(4) Remove the magnet (5) from the strainer (6).

(5) Remove the four screws (7) and the pump housing (8) from the manifold block (4).

(6) Remove the pump gear (9) and woodruff key (10) from the shaft (A) of the rotor assembly (11).

(7) Remove the four screws (12) and the motor housing (13) from the manifold block (4).

(8) Push the rotor assembly (11) inward toward the manifold block (4); then remove the retaining ring (14) from end of rotor assembly shaft (A).

(9) Remove the rotor assembly (11) from the manifold block (4).

(10) Using a screwdriver, pry the motor shaft seal (15) out the of manifold block (4).

B. Installation

(1) Clean all metal shavings off of all components.

(2) Coat the motor shaft seal (15, Figure 4-10) with vaseline or mineral oil.

CAUTION
Do not allow the motor shaft seal to become cocked during installation or it will become impossible to install without damaging it.

(3) Using a hammer and 3/4 inch socket, install the motor shaft seal (15) in the manifold block (4).

(4) Slide the shaft (A) of the rotor assembly (11) thru the manifold block (4) and secure in place by installing the retaining ring (14) on the end of the rotor assembly shaft (A).

(5) Install the motor housing (13) on the manifold block (4) and secure with four screws (12).

(6) Install woodruff key (10) and pump gear (9) on the shaft (A) of the rotor assembly (11).

(7) Install the pump housing (8) on the manifold block (4) and secure with four screws (7).

(8) Install the magnet (5) on the strainer (6).

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(9) Make sure the o-ring (1) on the manifold block is present and clean. Coat the o-ring (1) with mineral oil.

NOTE
The strainer may get in the way when the reservoir is being installed. If so, rotate the strainer out of the way.

(10) Install the reservoir (3) on the manifold block (4) and secure with four screws (2).

(11) Install the motor pump (Refer to para 4.10 or 4.10.1).

(12) Plug the table power cord into an outlet.

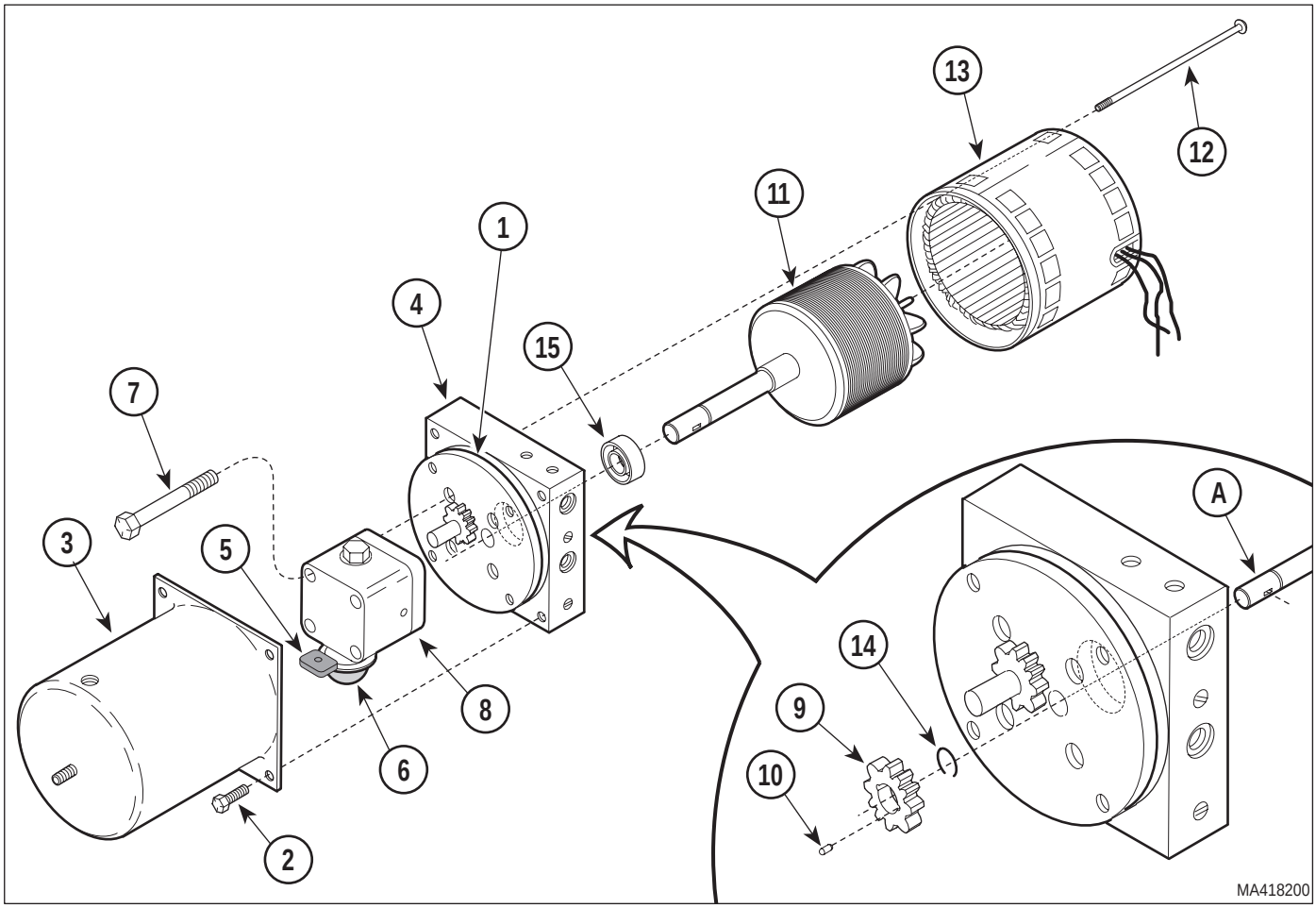

Figure 4-10. Motor Shaft Seal Removal / Installation

4.11 Base Cylinder Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-11) and back outer shroud (2) from left and right hand outer shrouds (3).

(4) Remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

NOTE
The motor pump and control panel can be carefully pushed out of the way to allow a socket and ratchet to be used on the bottom two screws (7).

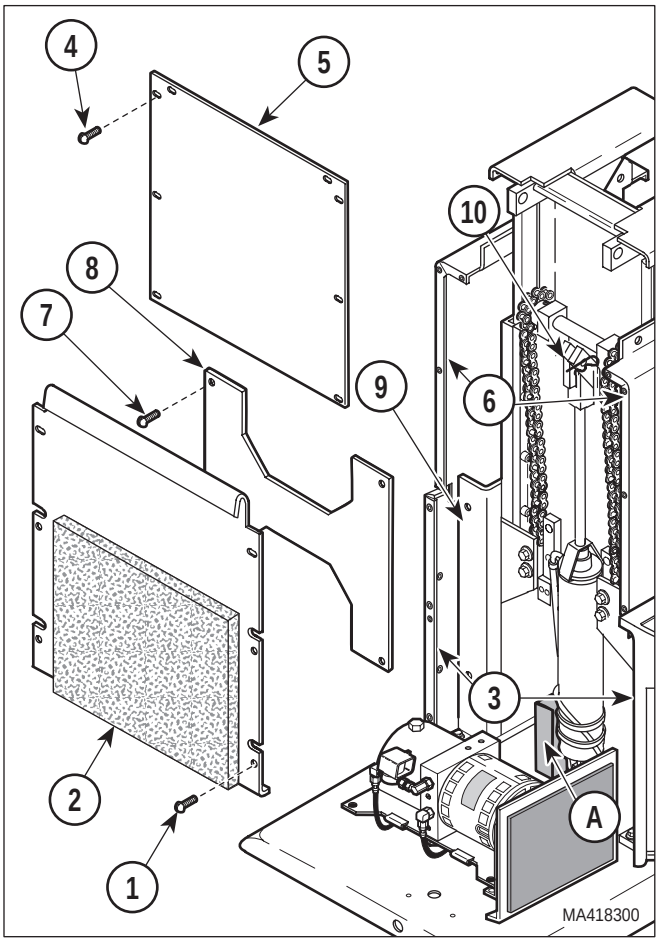

Figure 4-11. Base Cylinder Access

(5) Remove four screws (7) and brace (8) from base slide assembly (9).

(6) Plug table power cord into outlet.

(7) If BASE DOWN function is operable, place a block (A) under middle slide of base slide assembly (9). Lower the BASE DOWN function until the middle slide of the base slide assembly (9) is resting on the block (A) and pressure is off clevis pin (10).

NOTE
If the BASE DOWN function does not operate, place supports, such as saw horses, under each end of the table.

(8) Tag and disconnect the base cylinder electrical leads from terminal block. (Refer to para 5.1, Electrical Wiring Diagrams and Schematics).

DANGER
Make sure table top is properly secured from lowering or tipping over when base cylinder is disconnected from table top. Clevis pin (2, Figure 4-12) should not have any weight on it if table top is supported properly. Failure to have table top properly secured could result in serious personal injury or death.

(9) Remove hitch pin clip (1, Figure 4-12) and clevis pin (2) from rod end of base cylinder (3).

(10) Remove hitch pin clip (4), clevis pin (5), and partially separate base cylinder (3) from brackets (A).

EQUIPMENT ALERT
Mark the location of the cable ties to assure they are placed back in the same location during installation. Failure to relocate the cable ties in the same location could cause premature failure of the hydraulic hose assemblies.

(11) Cut the cable ties (6) securing hose assemblies to base cylinder (3).

(12) Disconnect the return (7) and power (8) hose assemblies from the base cylinder (3).

(13) Remove the base cylinder (3) from table.

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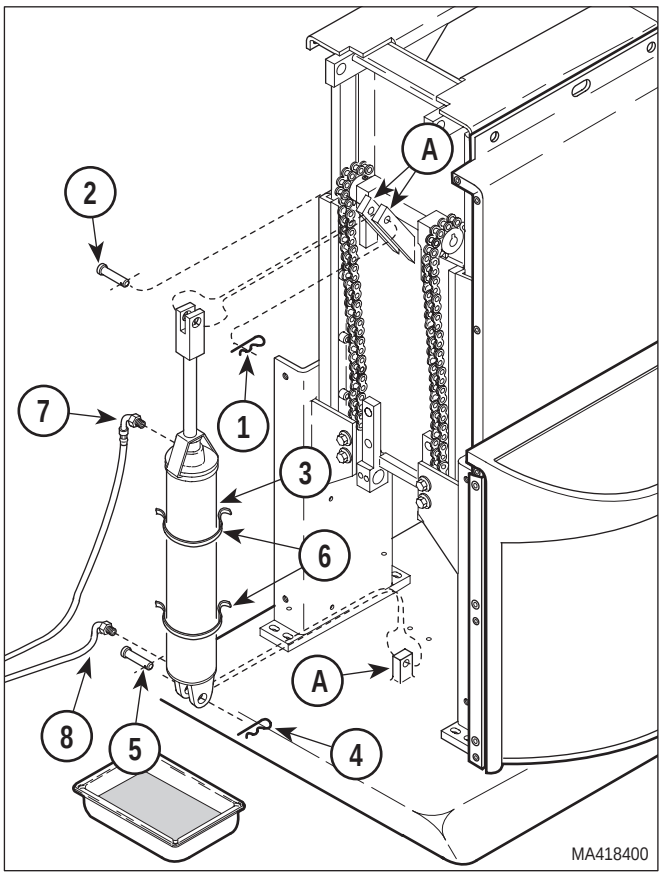

Figure 4-12. Base Cylinder Removal / Installation

B. Installation

(1) Position base cylinder (3, Figure 4-12) on table.

EQUIPMENT ALERT
Assure the cable ties are placed back in the exact same location from where they were removed. Failure to relocate the cable ties in the same location could cause premature failure of the hydraulic hose assemblies.

(2) Connect the return (7) and power (8) hoses to the base cylinder (3) and secure with cable ties

(3) Install base cylinder (3) on brackets (A) and secure with clevis pins (2 and 5) and hitch pin clips (1 and 4).

(4) Connect base cylinder electrical leads to the terminal block. (Refer to para 5.1, Electrical Wiring Diagram and Schematics).

(5) Plug table power cord into outlet.

(6) Raise BASE UP function slightly and remove block (A, Figure 4-11) from under middle slide of base slide assembly (9) or remove supports from under table top.

(7) Lower BASE DOWN function all the way down.

EQUIPMENT ALERT
It is very important that the inner member weldment does not come in contact with the top of the middle slide. Failure to check, and if necessary adjust, may result in equipment damage.

(8) If there *is not* a 1/16 to 1/8 inch (1.6 to 3.2 mm) gap between inner member weldment (A, Figure 4-13) and top of middle slide (B) when the BASE DOWN function is completely lowered perform steps 13 thru 15. If gap is correct when the BASE DOWN function is completely lowered, go to step 16.

EQUIPMENT ALERT
The cylinder rod must be partially extended before performing step 10. If the cylinder rod is fully extended or retracted when step 10 is being performed, damage to seals will occur.

(9) Raise BASE UP function up until cylinder rod (1) is extended halfway.

(10) Place a wrench on adjusting seats (C) of cylinder rod (1) and use it to rotate cylinder rod to adjust clevis (D) up or down as necessary.

(11) Repeat steps 11 thru 15 until there *is* a 1/16 to 1/8 inch (1.6 to 3.2 mm) gap between inner member weldment (A) and middle slide (B) of base slide assembly when the BASE DOWN function is completely lowered.

(12) Install brace (8, Figure 4-11) on base slide assembly (9) and secure with four screws (7).

(13) Install back inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(14) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(15) If necessary, add oil to motor pump (Refer to para 4.3).

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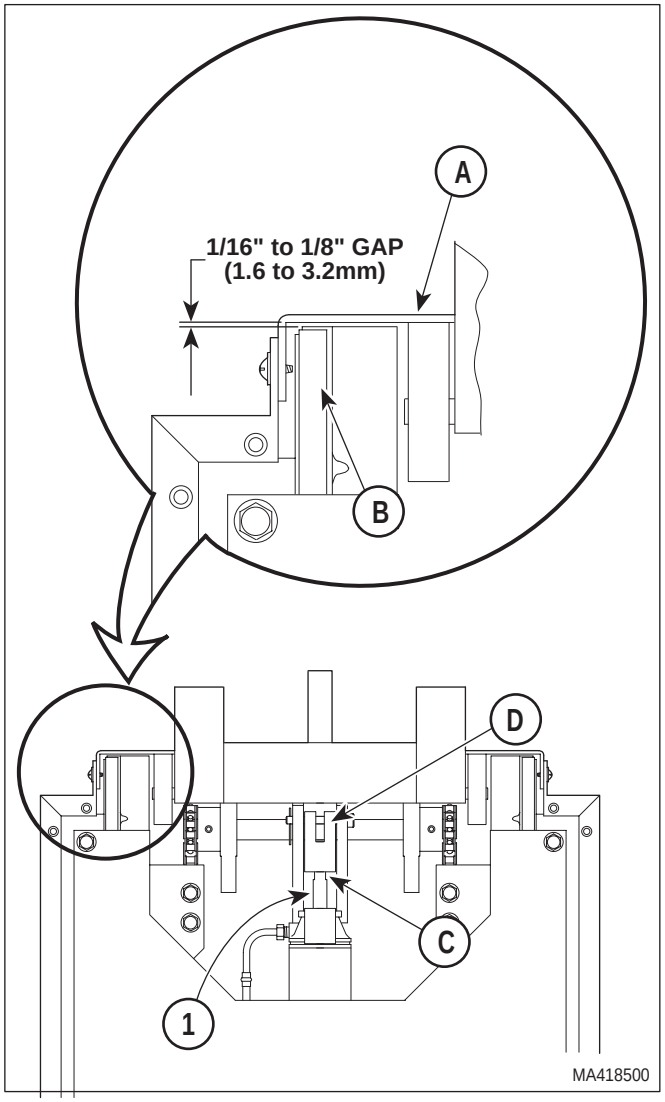

Figure 4-13. Base Cylinder Clevis Adjustment

(16) Install motor cover assembly (Refer to para 4.2).

4.12 Time Delay Relay Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Tag and disconnect electrical leads from the time delay relay (1, Figure 4-14).

(4) Remove nut (2), screw (3), washer (4), and time delay relay (1) from control panel (5).

B. Installation

(1) Install time delay relay (1, Figure 4- 14) on control panel (5) and secure with washer (4), screw (3), and nut (2).

(2) Connect the electrical leads to the time delay relay (1).

(3) Install motor cover assembly (Refer to para 4.2).

(4) Plug table power cord into outlet.

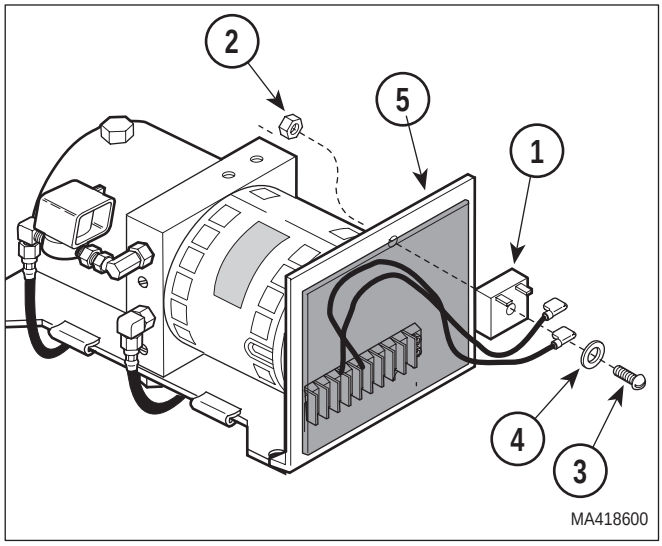

Figure 4-14. Time Delay Relay Removal / Installation

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4.13 Capacitors Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove four screws (1, Figure 4-15) and front outer shroud (2) from left and right hand outer shrouds (3).

(3) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(4) Cut the cable tie (7) securing the electrical leads to the capacitor (8).

(5) Using a screwdriver, pry tab (A) of capacitor mounting bracket (9) upward and remove capacitor (8) from capacitor mounting bracket.

(6) Remove capacitor cap (10) from capacitor (8).

DANGER
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(7) Discharge capacitor (8).

(8) Disconnect electrical leads from terminals of capacitor (8).

B. Installation

(1) Connect capacitor electrical leads to terminals of capacitor (8, Figure 4-15).

(2) Install capacitor cap (10) on capacitor (8).

(3) Position bottom of capacitor (8) on capacitor mounting bracket (9) and then push the top of the capacitor in. Using a screwdriver, force tab (A) of capacitor mounting bracket (9) down over catch (B).

(4) Install cable tie to secure wire to capacitor (7).

(5) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(6) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(7) Plug table power cord into outlet.

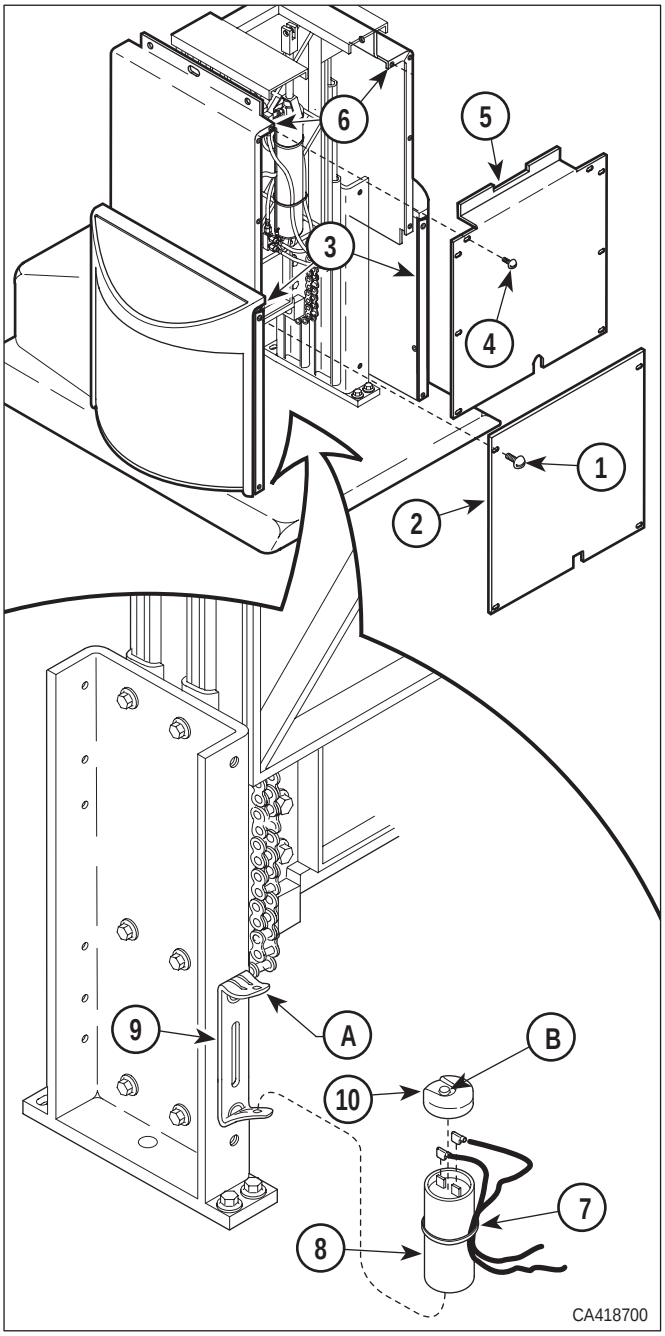

Figure 4-15. Capacitors Removal / Installation

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4.14 Chain Assembly Adjustment

A. Adjustment

(1) Raise TABLE UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-16) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Loosen four bolts (7).

EQUIPMENT ALERT
Adjust chains so they are tight, yet have a slight spring back. Also, adjust chains so there is an equal amount of tension on each chain. Failure to do so will result in chains loosening earlier and uneven wear.

(6) Insert a pry bar or large screwdriver into adjustment gap (A) and pry downward on idler adjustment weldment (8) until chains (9) are tight, but not drum tight. Tighten four bolts (7).

(7) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(8) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(9) Plug table power cord into outlet.

4.15 Base Slide Assembly Removal / Installation

A. Removal

(1) If possible, raise TABLE UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove motor cover assembly (Refer to para 4.2).

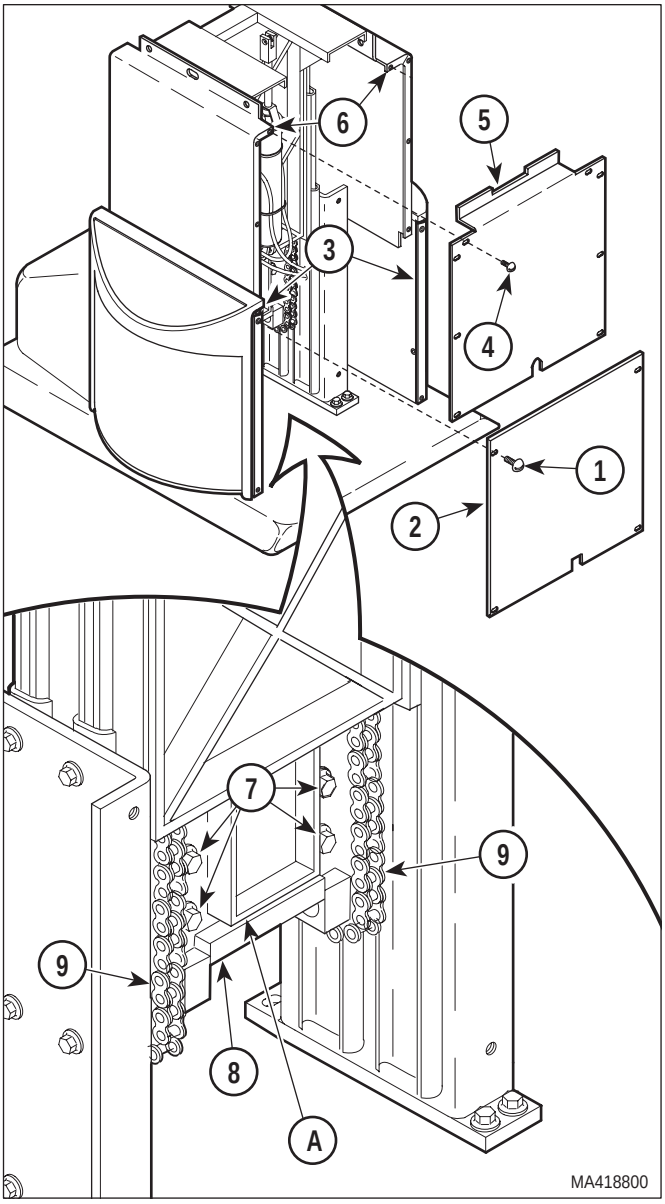

Figure 4-16. Chain Assembly Adjustment

(4) Remove four screws (1, Figure 4-17) and back outer shroud (2) from left and right hand outer shrouds (3).

(5) Remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

(6) Remove four screws (7) and front outer shroud (8) from left and right hand outer shrouds (3).

(7) Remove eight screws (9) and front inner shroud (10) from left and right hand inner shrouds (6).

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(8) Remove six screws (11), washers (12), and left and right hand inner shrouds (6) from base slide assembly (13).

(9) Remove six screws (14) and left and right hand outer shrouds (3) from base weldment (15).

DANGER

The supports must be capable of holding up table top after table top is disconnected from base slide assembly and the base slide assembly is removed. Failure to support table top properly could result in table top falling out-of-control which could result in serious personal injury or death.

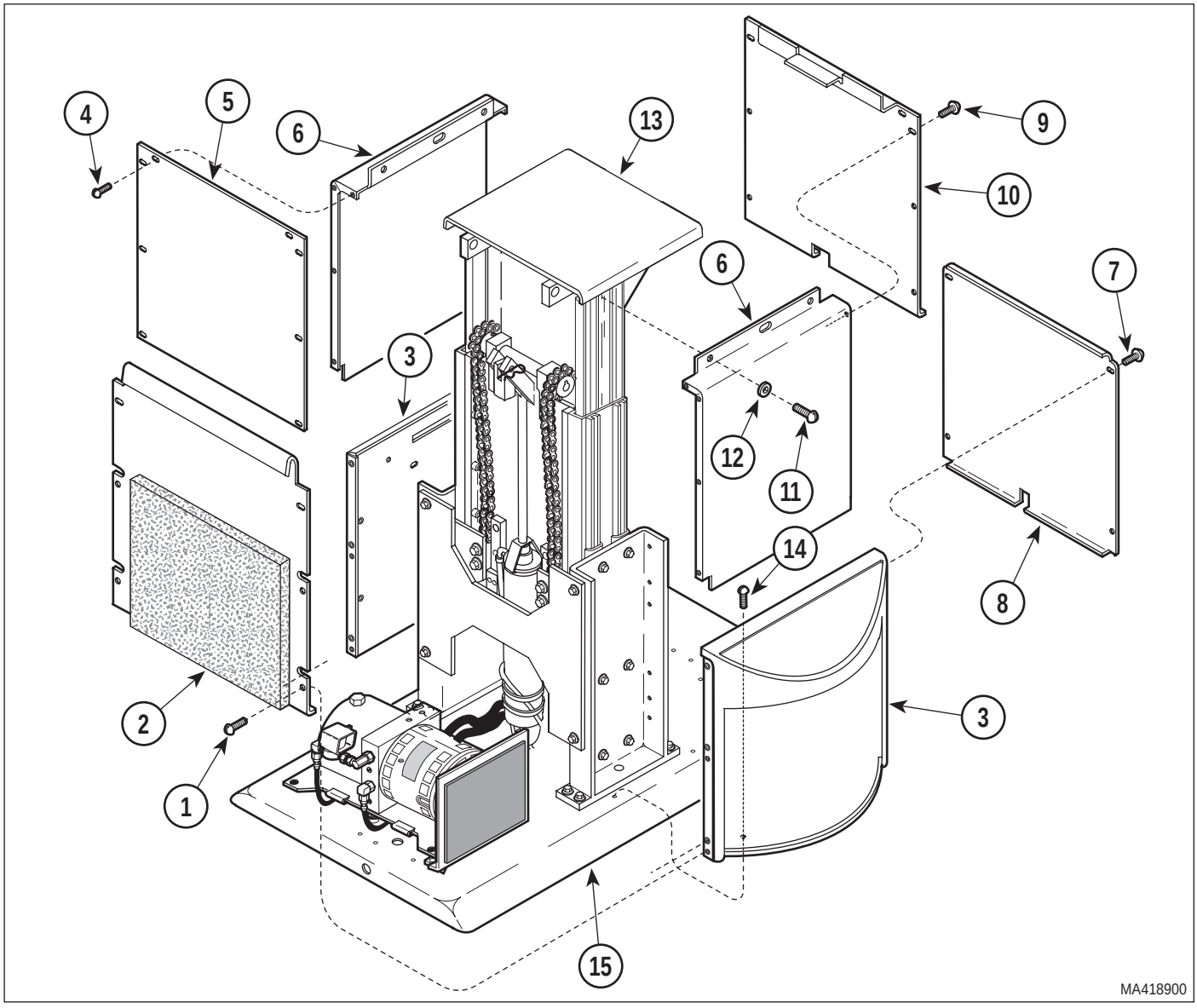

Figure 4-17. Shrouds Removal / Installation

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(10) Place supports (1, Figure 4-18) under table top (2), making sure weight of table top is being supported by supports. If necessary, plug table power cord into outlet and lower table top onto supports. Unplug table power cord from outlet.

DANGER

Make sure table top is properly supported for the following step. Table top will rest only on supports after this step. Also do not touch any wires inside of table when power cord is plugged in. This could result in electrical shock. Failure to comply with this warning could result in serious personal injury or death.

(11) Plug table power cord into outlet. Lower TABLE DOWN function all the way down. Unplug table power cord from outlet.

DANGER

Make sure base slide assembly is fully retracted (collapsed) before disconnecting base cylinder. Failure to do so will result in base slide assembly collapsing after base cylinder is disconnected which could result in serious personal injury.

(12) Remove hitch pin clip (3), clevis pin (4), and separate rod of base cylinder (A) from bracket (B).

(13) Remove capacitor (5) (Refer to para 4.13).

(14) Remove two nuts (6), two screws (7), and capacitor mounting bracket (8) from base slide assembly (9).

(15) Remove eight screws (10) from base slide assembly (9).

NOTE

If necessary, remove four screws (11) and brace (12) to allow base slide assembly (9) to be pulled over base cylinder (13).

(16) With the help of an assistant, remove base slide assembly (9) from base weldment (14).

B. Installation

(1) With the help of an assistant, install base slide assembly (9, Figure 4-18) on base weldment (14), making sure base cylinder (13) gets inserted between brace (12) and base slide assembly (9).

(2) Secure base slide assembly (9) on base weldment (14) with eight screws (10).

(3) Install capacitor mounting bracket (8) on base slide assembly (9) and secure with two screws (7) and nuts (6).

(4) Install capacitor (5) (Refer to para 4.13).

(5) Install rod end of base cylinder (A) on bracket (B) and secure with clevis pin (4) and hitch pin clip (3).

(6) Remove supports (1) from under table top (2).

(7) Install left and right hand outer shrouds (3, Figure 4-17) on base weldment (15) and secure with six screws (14).

(8) Install left and right hand inner shrouds (6) on base slide assembly (13) and secure with six washers (12) and screws (11).

(9) Install front inner shroud (10) on left and right hand inner shrouds (6) and secure with eight screws (9).

(10) Install front outer shroud (8) on left and right hand outer shrouds (3) and secure with four screws (7).

(11) Install back inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(12) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(13) Install motor cover assembly (Refer to para 4.2).

(14) Plug table power cord into outlet.

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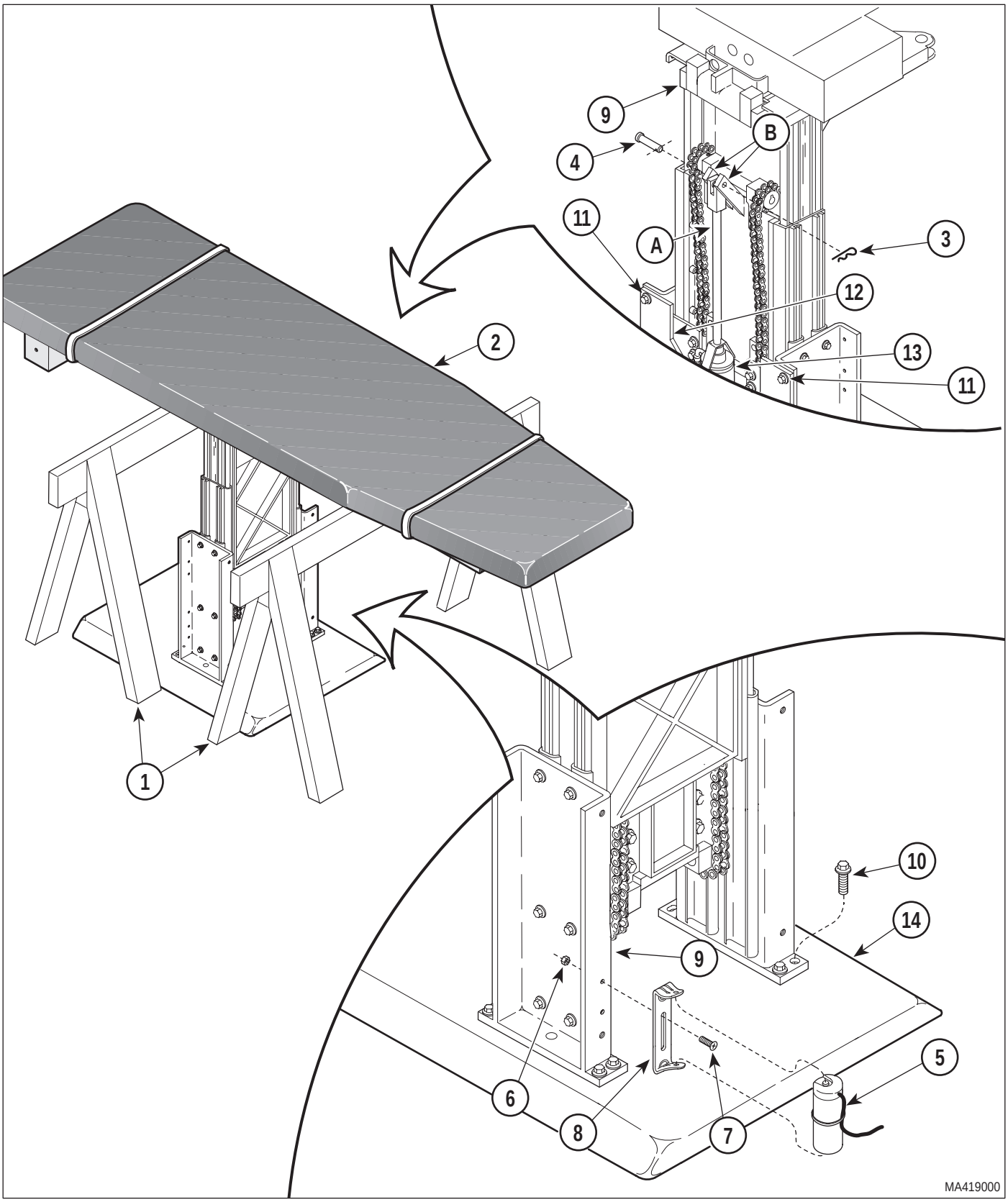

Figure 4-18. Base Slide Assembly Removal / Installation

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4.16 Footswitch Microswitch Removal / Installation / Adjustment

A. Removal

WARNING
Always disconnect the power cord from the wall outlet before removing any of the table's covers / shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in personal injury or death.

(1) Disconnect the power cord from the wall outlet.

(2) Remove the pivot screw (1, Fig. 4-19) and lockwasher (2) from the footswitch pedal (3).

(3) Remove the pedal (3) by lifting the end of it upward and pushing back toward the cord end of the footswitch assembly to unhook the pedal (3) from the pivot bracket (A).

NOTE
Place location tags on the electrical leads connected to the malfunctioning microswitch for identification purposes during installation.

(4) Remove the mounting screw (4) and locknut (5) that secures the microswitch (6) to the mounting bracket (B).

(5) Remove the electrical leads from the malfunctioning microswitch (6) and remove the switch.

B. Installation

NOTE
The microswitch has markings on the side to identify the normally open, normally closed and common terminals to assist in making electrical connections.

(1) Using the location tags, previously place on the electrical leads, connect the electrical leads to the microswitch (6, Fig. 4-19). If necessary, refer to Wiring Diagram, para 5.1.

EQUIPMENT ALERT
Inspect the insulators (7) to assure they are in good condition and replace if necessary. The insulators should be located so that they extend out past the connectors on the electrical leads to prevent possible electrical shorts.

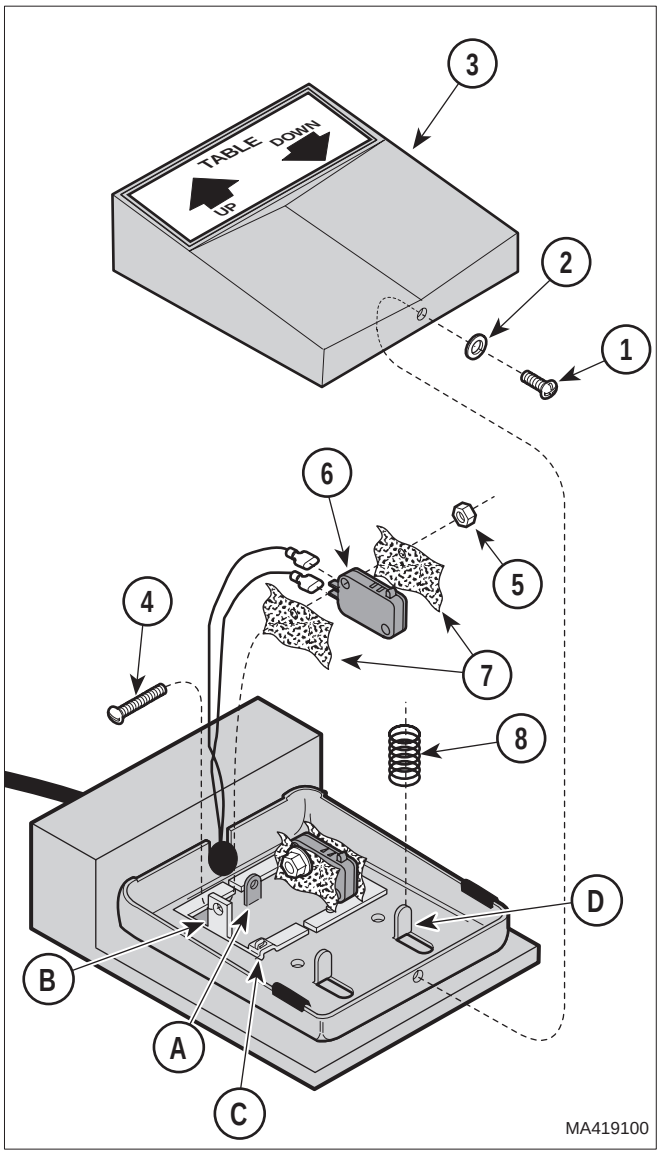

Figure 4-19. Footswitch Microswitch Removal / Installation

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(3) Secure the microswitch and insulators to the mounting bracket (B) with the mounting screw (4) and lock nut (5).

NOTE
Assure the pedal springs (8) are in good condition and located on the positioning tabs (D) before installing the pedal.

(4) Install the pedal (3) assuring that it is located properly on the pivot bracket (A) and secure with the pivot screw (1) and lockwasher (2).

(5) Plug the table power cord into the wall outlet.

(6) Check the operation of each pedal function by depressing the pedal and listening and observing the specific function.

4.17 Hydraulic System Flushing Procedure

NOTE
The following procedure is recommended for the following reasons:
- The hydraulic system is excessively contaminated with dirt particles or water, causing repeated malfunctions of hydraulic components.
- An oil other than light weight mineral oil has been added to the hydraulic system, causing the table to malfunction or perform erratically.

A. Flushing Procedure

(1) Lower TABLE DOWN function all the way down.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove filler cap (1, Figure 4-20) from reservoir (2).

(4) Get a suitable drain pan (A) with a capacity of approximately 2 quarts (1.9 liters).

(5) Using a syringe or suction device, remove all oil from the reservoir (2).

(6) Refill reservoir (2) with light grade mineral oil.

(7) Disconnect hose (3) from down function shuttle valve (4) and place end of hose in drain pan (A).

(8) Raise TABLE UP function all the way up, while making sure to keep refilling reservoir (2) with light grade mineral oil as necessary.

(9) Connect hose (3) to down function shuttle valve (4).

(10) Disconnect hose (5) from up function shuttle valve (6) and place end of hose in drain pan (A).

(11) Lower TABLE DOWN function all the way down, while making sure to keep refilling reservoir (2) with light grade mineral oil as necessary.

(12) Connect hose (5) to up functions shuttle valve (6).

(13) Repeat steps 7 thru 12 until oil being removed is clear and contains no dirt particles.

(14) Run the TABLE functions up and down until all air is purged from the hydraulic system.

(15) Lower the table all the way down; then check oil level and add or remove oil as necessary (Refer to para 4.3).

(16) Install motor cover assembly (Refer to para 4.2).

(17) Dispose of used oil in accordance with local regulations.

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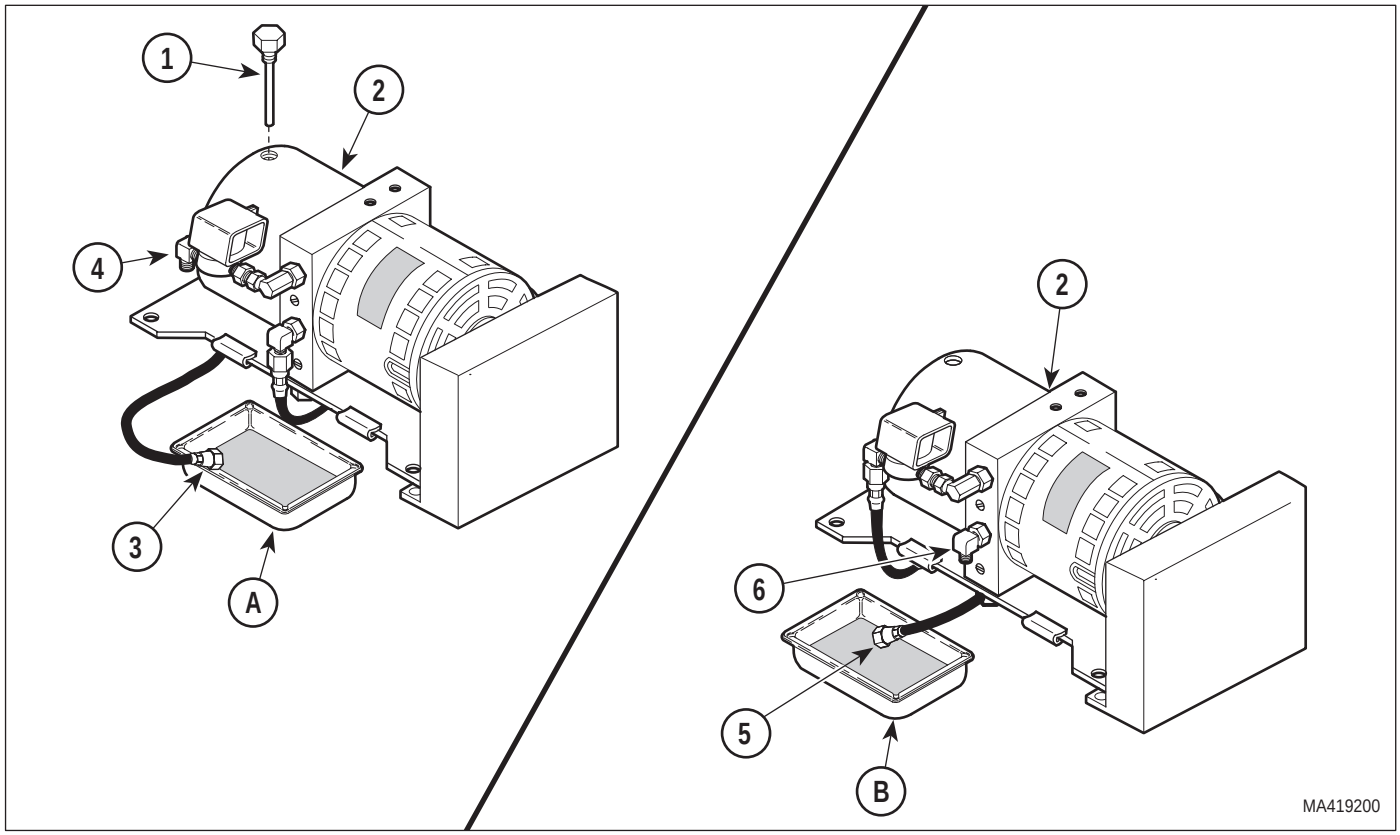

Figure 4-20. Hydraulic System Flushing Procedure

4.18 Transformer Removal / Installation (306-003, 100 VAC units only)

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove four screws (1, Figure 4-21) and front outer shroud (2) from left and right hand outer shrouds (3).

(3) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(4) Tag and disconnect three wires (7) from three wires (8) and cut wire tie (9).

(5) Remove four nuts (10) and transformer (11) from mounting bracket (12).

B. Installation

(1) Install transformer (11) on mounting bracket (12) and secure with four nuts (10).

(2) Connect three wires (7) to three wires (8) and secure with wire tie (9).

(3) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(4) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(5) Plug table power cord into outlet.

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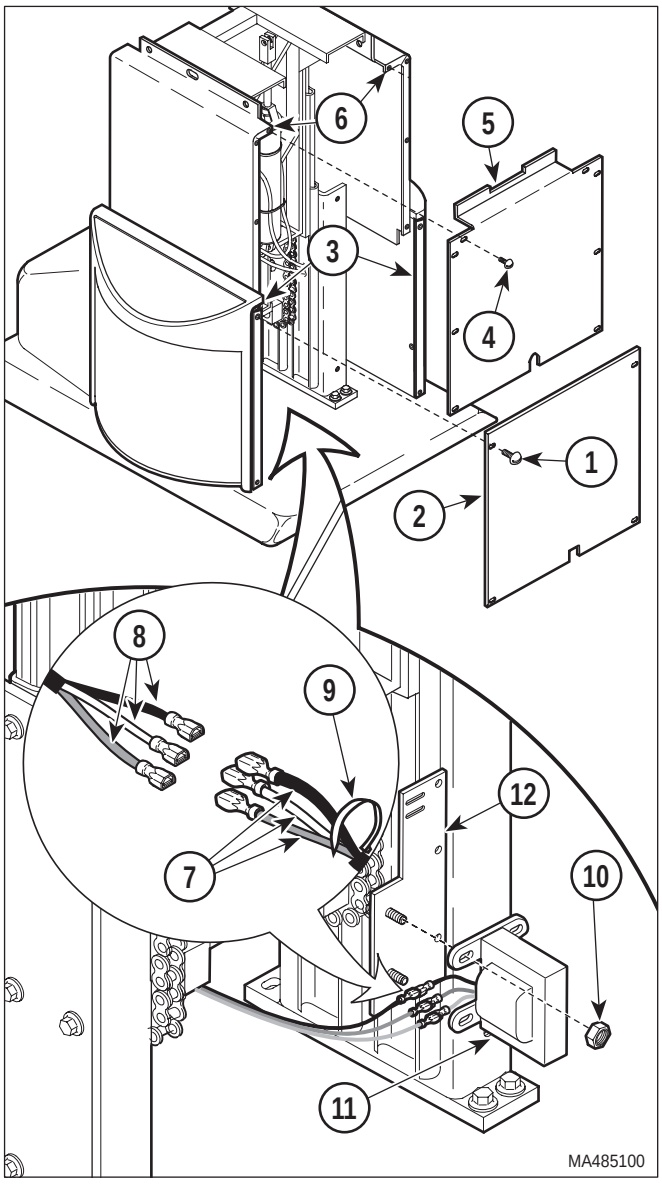

Figure 4-21. Transformer Removal / Installation

4.19 Fuse Removal / Installation (306-003, 100 VAC units only)

A. Removal

(1) Disconnect power cord (1, Figure 4-22) from AC inlet (2).

(2) Insert a small flat bladed screwdriver into slot (A) and gently pry open fuse access door (3).

(3) Push outward on tabs (B) and remove two fuse holders (4).

(4) Remove fuses (5) from fuse holders (4).

B. Installation

(1) Insert two fuses (5) into fuse holders (4).

(2) Insert two fuse holders (4) into AC inlet (2) until they snap into place.

(3) Push fuse access door (3) down until it locks in place.

(4) Connect power cord (1) to AC inlet (2).

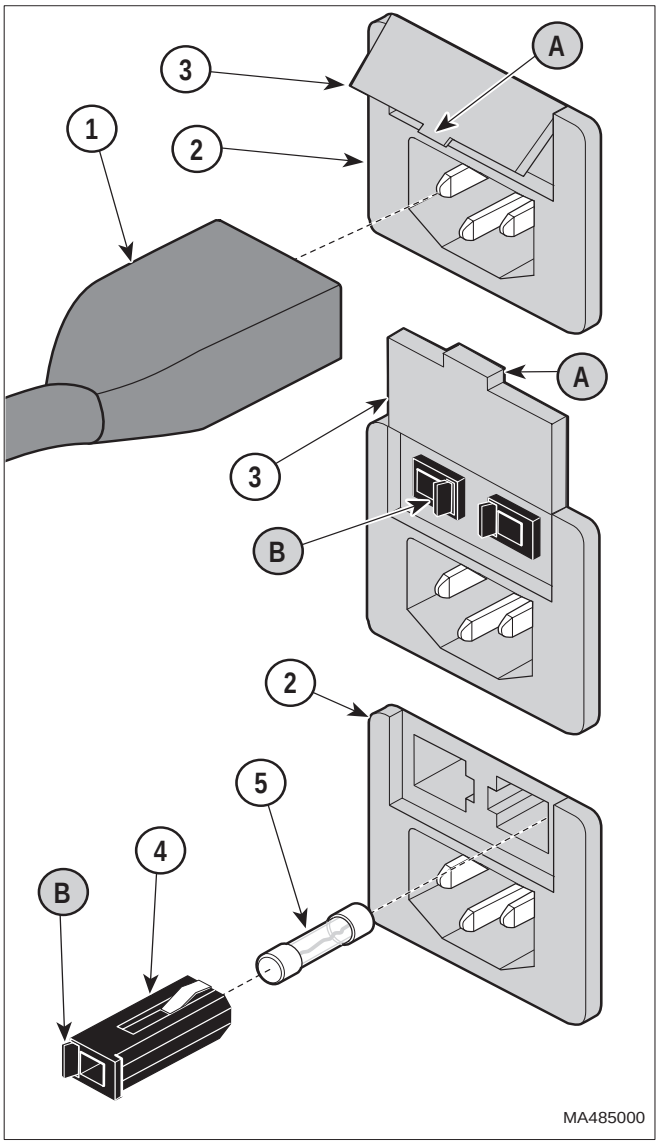

Figure 4-22. Fuse Removal / Installation

4.20 AC Inlet Removal / Installation (306-003, 100 VAC units only)

A. Removal

(1) Disconnect power cord (1, Figure 4-23) from AC inlet (2).

(2) Remove two screws (3) from motor cover (4)

(3) Remove six screws (5) and motor cover (4) from back outer shroud (6).

(4) Remove two screws (7) and partially separate AC inlet (2) from bracket (8).

(5) Tag and disconnect two wires (9) and ground wire (10) from terminals of AC inlet (2).

(6) Remove AC inlet (2).

B. Installation

(1) Connect two wires (9) and ground wire (10) to terminals of AC inlet (2).

(2) Install AC inlet (2) and secure to bracket (8) with two screws (7).

(3) Install motor cover (4) and secure to AC inlet (2) with two screws (6), making sure top edge of motor cover is inserted behind lip (A) of back outer shroud (5).

(4) Secure motor cover (4) to back outer shroud (5) with six screws (3).

(5) Connect power cord (1) to AC inlet (2).

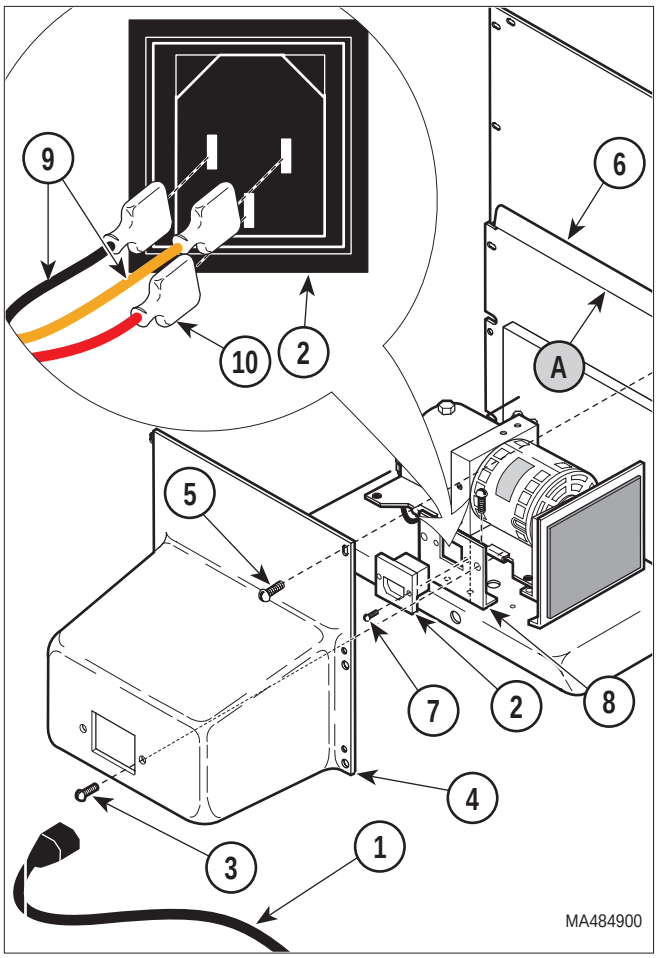

Figure 4-23. AC Inlet Removal / Installation

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SECTION V
SCHEMATICS AND DIAGRAMS

5.1 Electrical Schematics / Wiring Diagrams

Figures 5-1 thru 5-4 illustrates the current flow and wiring connections between the electrical components in both the 115 VAC tables and the 100 VAC tables.

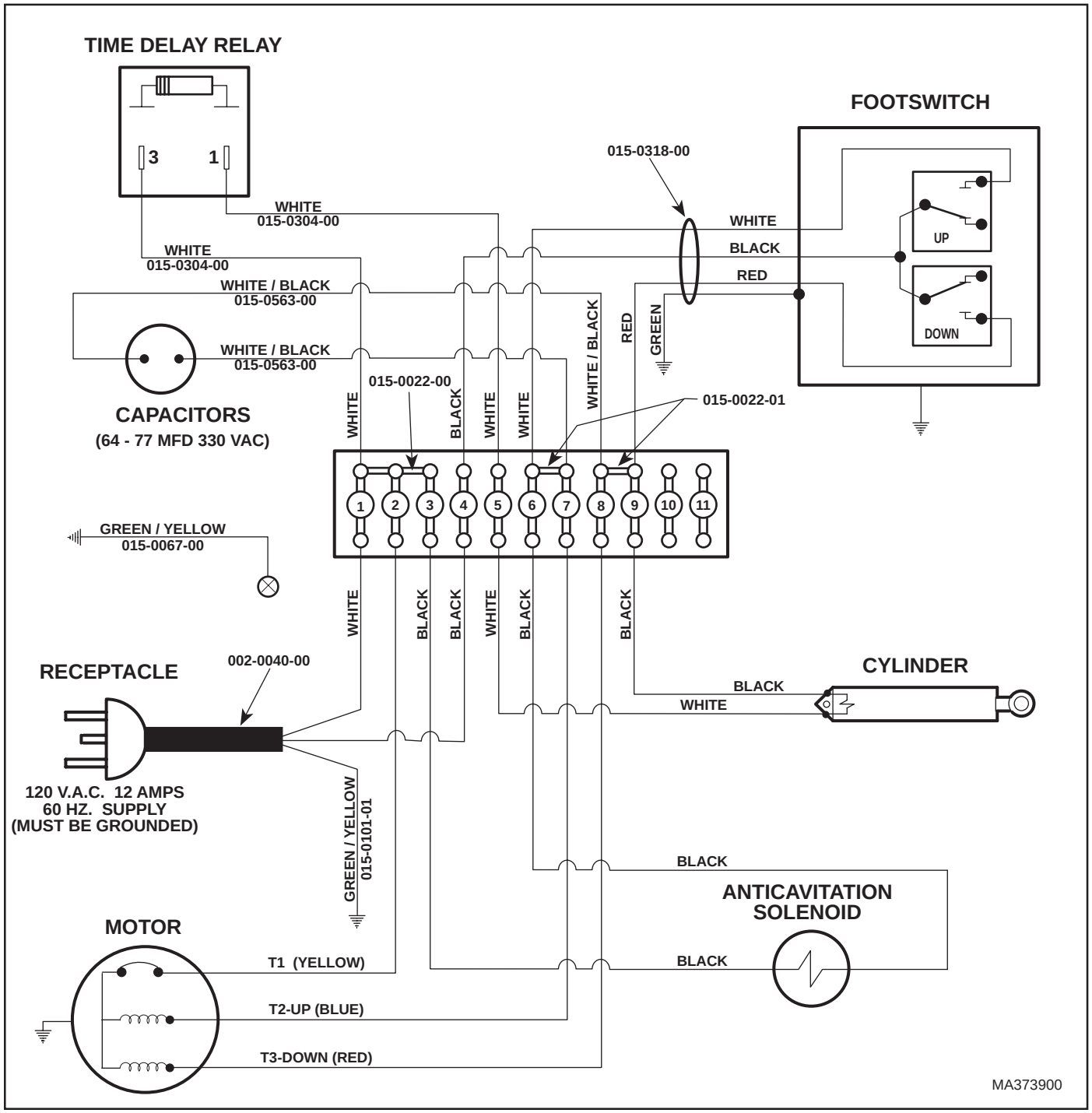

Figure 5-1. 115 VAC Units Wiring Diagram

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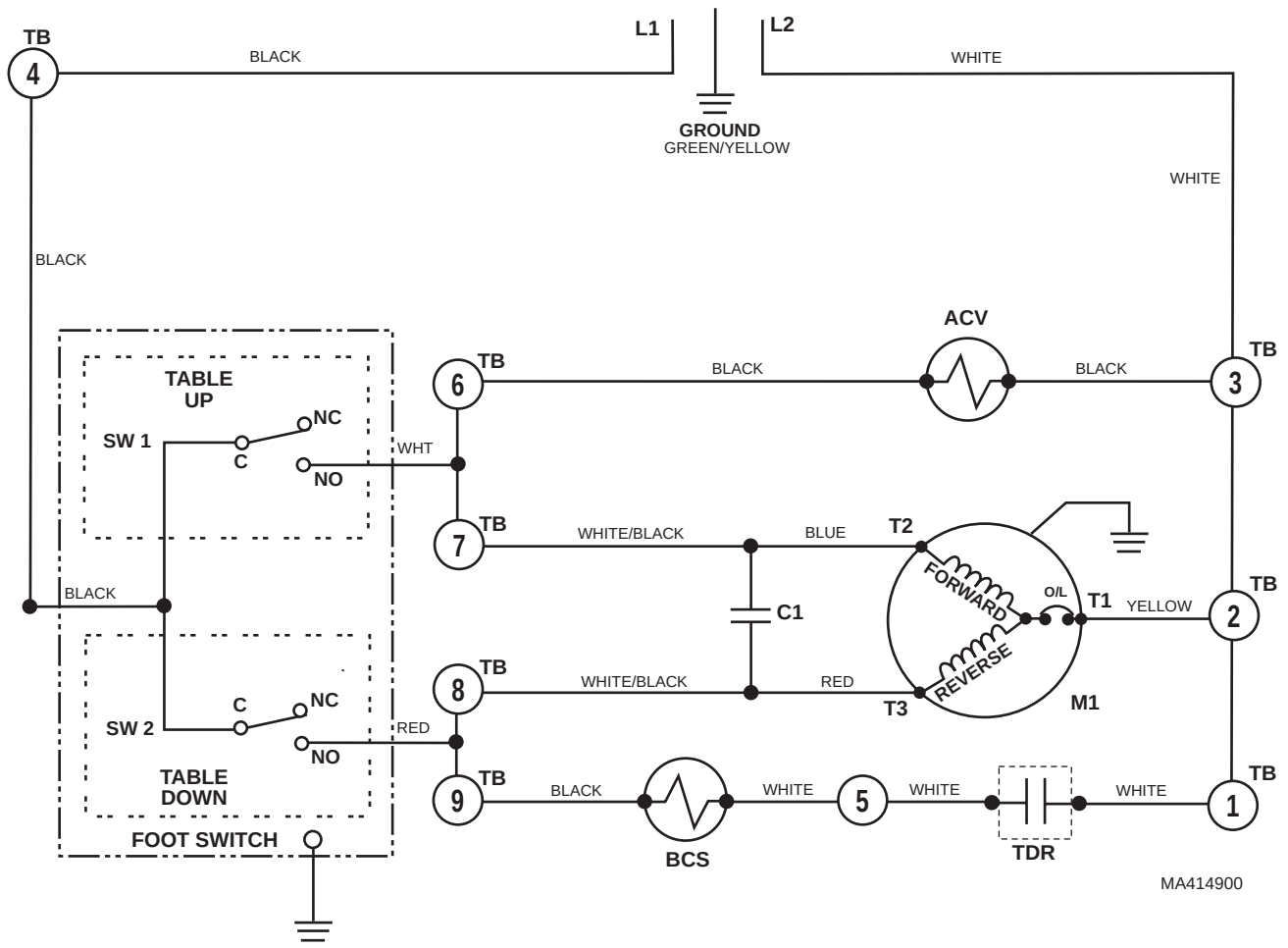
SCHEMATICS AND DIAGRAMS



NOTE

All controls are shown in the un-operated or un-energized position.

NO	**=**	**Normally Open Contacts**
NC	**=**	**Normally Closed Contacts**
C	**=**	**Common**
TB	**=**	**Terminal Board**
O/L	**=**	**Overload**
C1	**=**	**Capacitor**
SW	**=**	**Switch**
M1	**=**	**Motor Pump**
TDR	**=**	**Time Delay Relay**
ACV	**=**	**Anti-Cavitation Valve**
BCS	**=**	**Base Cylinder Solenoid**

Figure 5-2. 115 VAC Units Electrical Schematic

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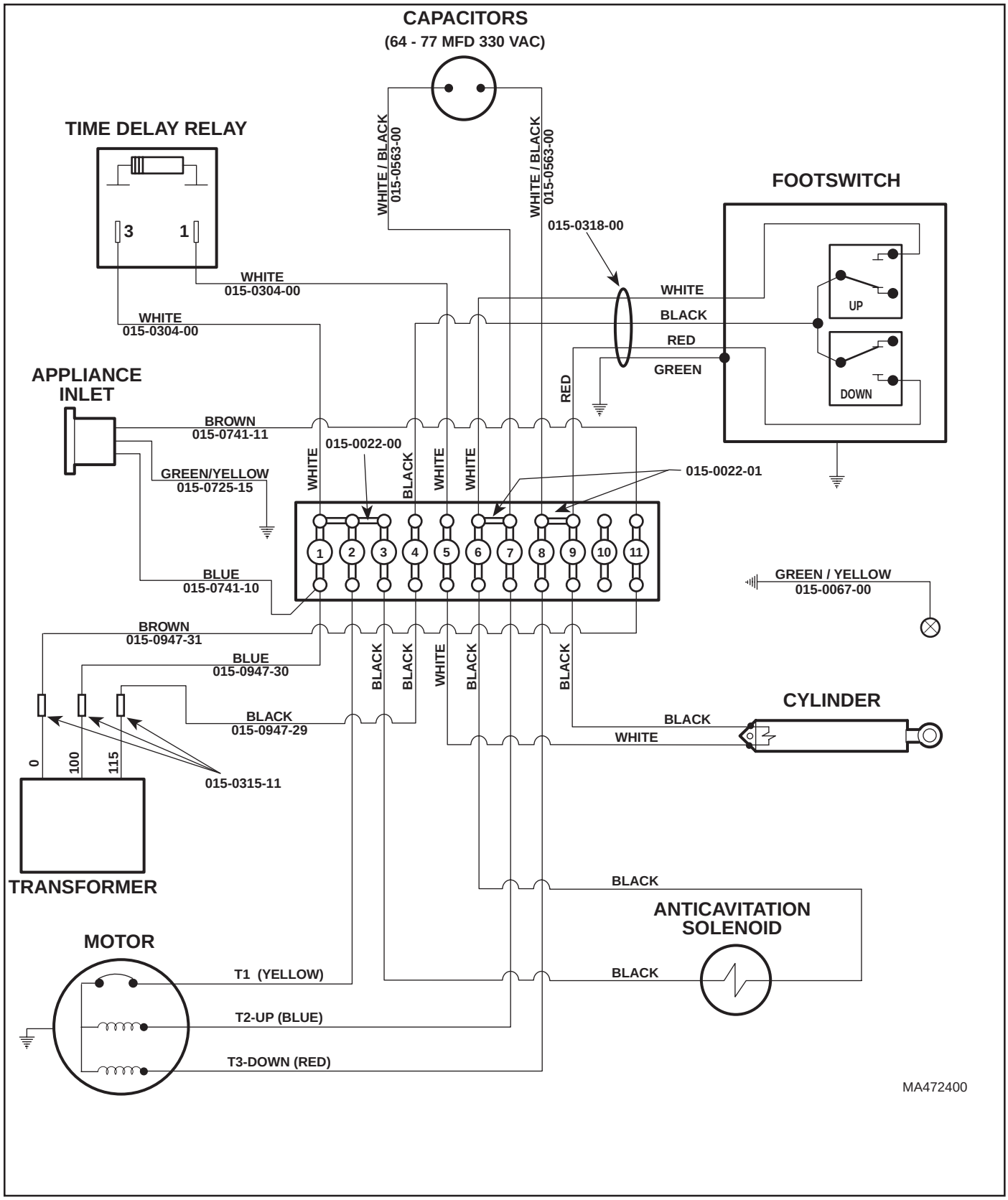

Figure 5-3. 100 VAC Units Wiring Diagram

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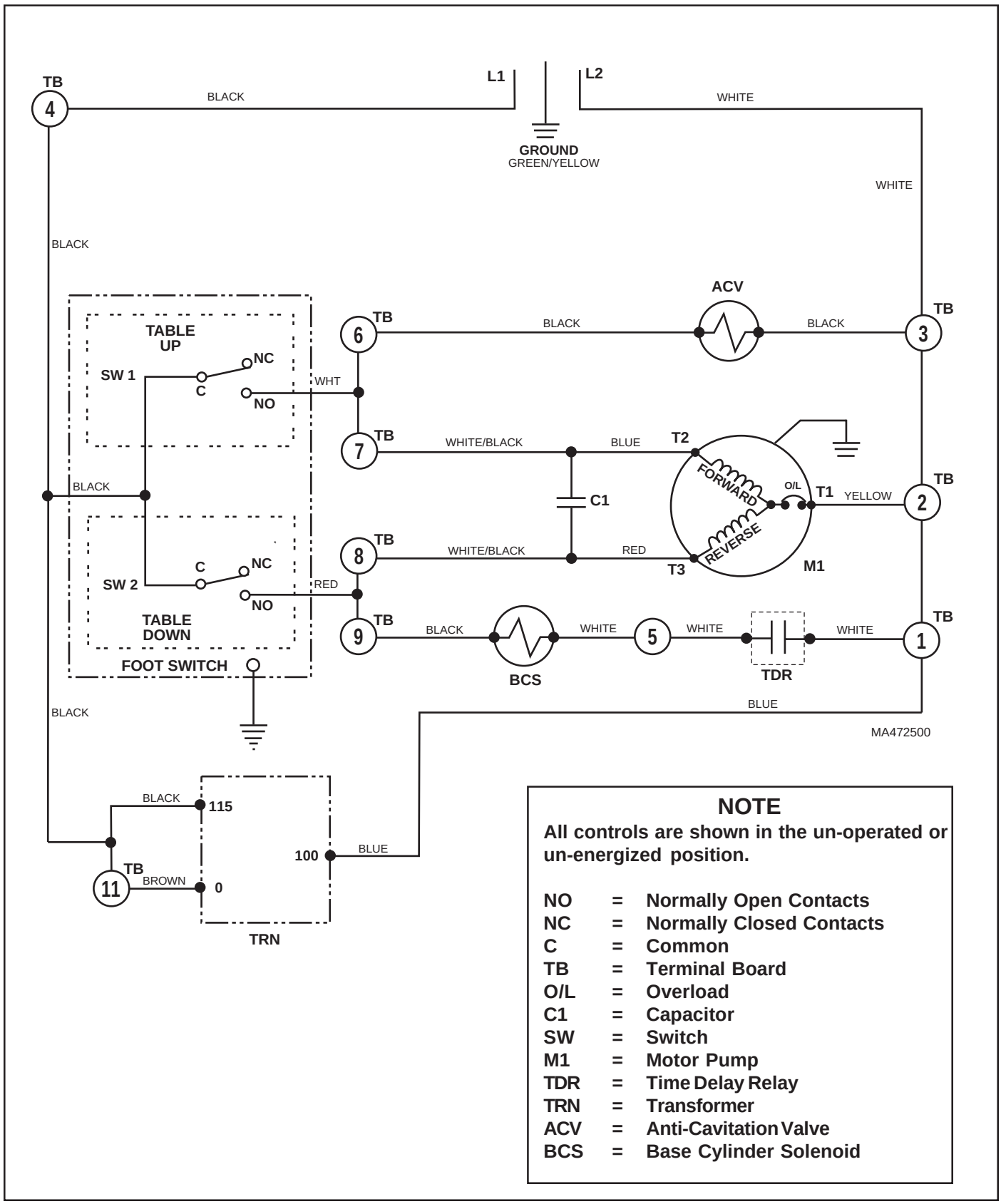
SECTION V
SCHEMATICS AND DIAGRAMS



NOTE

All controls are shown in the un-operated or un-energized position.

NO	=	**Normally Open Contacts**
NC	=	**Normally Closed Contacts**
C	=	**Common**
TB	=	**Terminal Board**
O/L	=	**Overload**
C1	=	**Capacitor**
SW	=	**Switch**
M1	=	**Motor Pump**
TDR	=	**Time Delay Relay**
TRN	=	**Transformer**
ACV	=	**Anti-Cavitation Valve**
BCS	=	**Base Cylinder Solenoid**

Figure 5-4. 100 VAC Units Electrical Schematic

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5.2 Hydraulic Flow Diagrams.

Figures 5-5 and 5-6 illustrate the hydraulic fluid flow during the TABLE UP and DOWN operations.

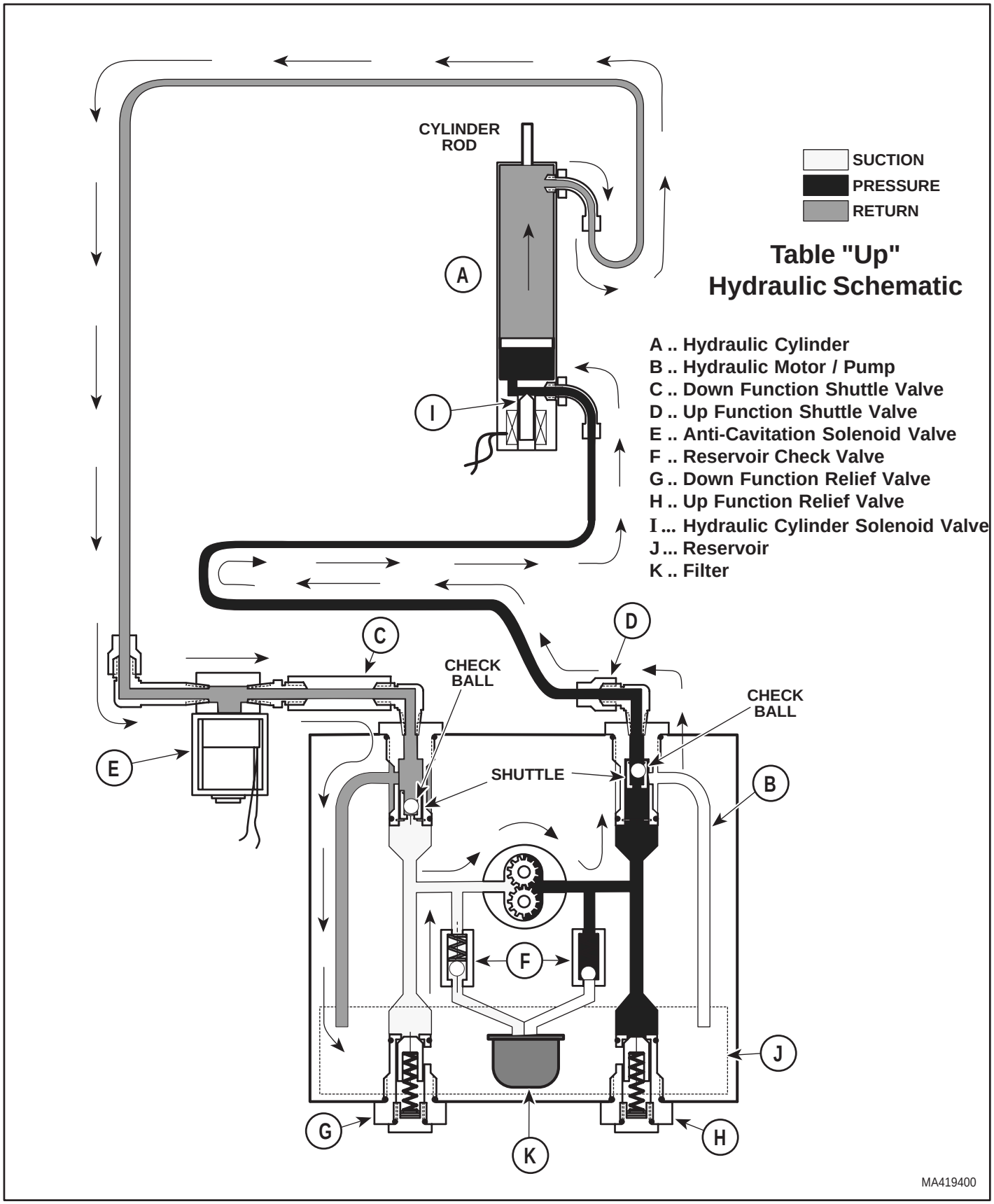

Figure 5-5. Hydraulic Schematic

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SECTION V
SCHEMATICS AND DIAGRAMS

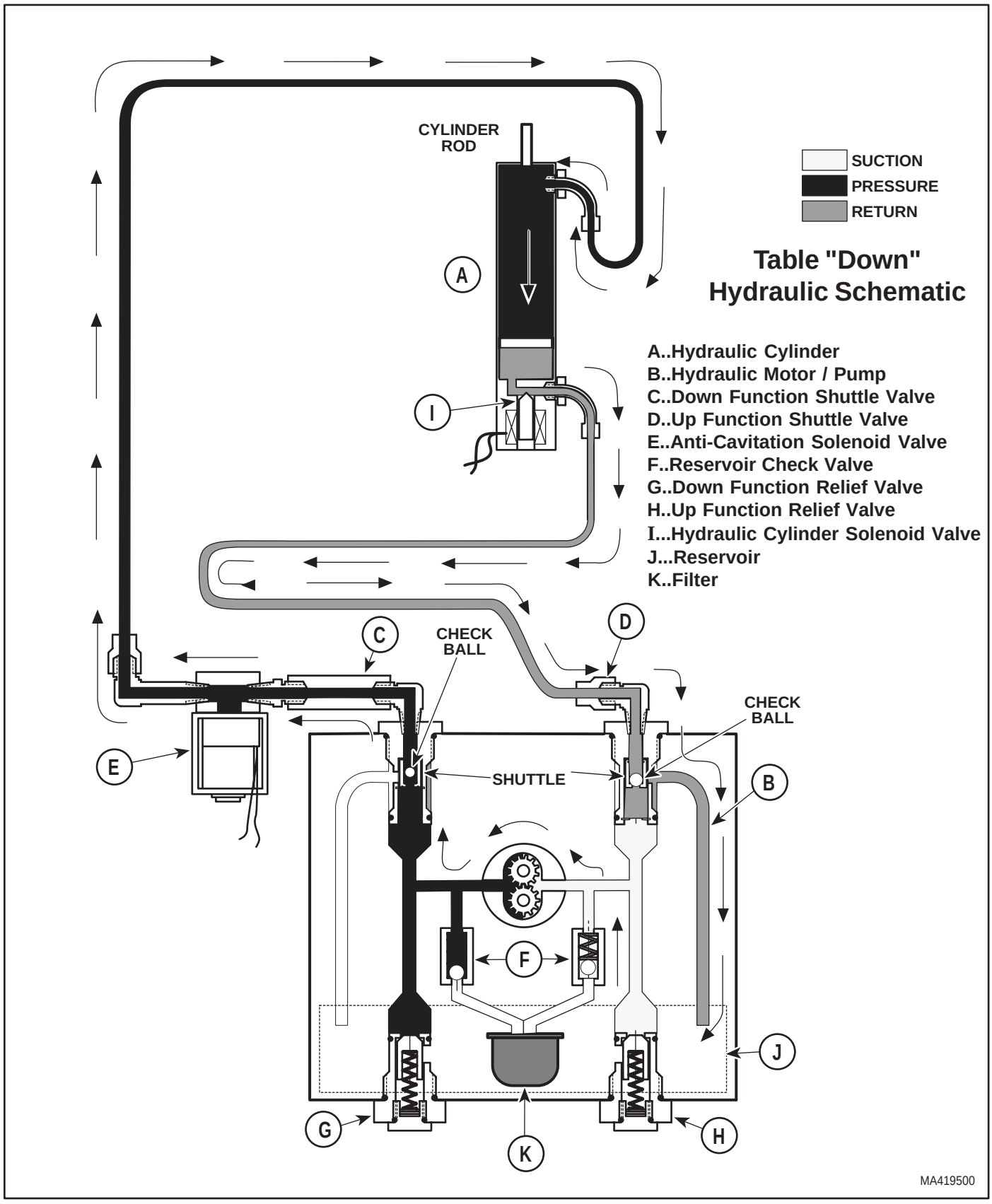

Figure 5-6. Hydraulic Schematic

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SECTION VI
PARTS LIST

6.1 Introduction

The illustrated parts list provides information for identifying and ordering the parts necessary to maintain the unit in peak operating condition. Refer to paragraph 1.5 for parts ordering information.

The parts list also illustrates disassembly and assembly relationships of parts.

6.2 Description of Columns

The *Item* column of the parts list gives a component its own unique number. The same number is given to the component in the parts illustration. This allows a part number of a component to be found if the technician can visually spot the part on the illustration. The technician simply finds the component in question on the illustration and notes the item number of that component. Then, he finds that item number in the parts list. The row corresponding to the item number gives the technician the part number, a description of the component, and quantity of parts per subassembly. Also, if a part number is known, the location of that component can be determined by looking for the item number of the component on the illustration.

The *Part No.* column lists the MIDMARK part number for that component.

The *Description* column provides a physical description of the component.

The *Qty.* column lists the number of units of a particular component that is required for the subassembly. The letters “AR” denote “as required” when quantities of a particular component cannot be determined, such as: adhesive.

Bullets [•] in the *Part No.* column and the *Description* column show the indenture level of a component. If a component does not have a bullet, it is a main component of that illustration. If a component has a bullet, it is a subcomponent of the next component listed higher in the parts list than itself that does not have a bullet. Likewise, if a component has two bullets, it is a subcomponent of the next component listed higher in the parts list than itself that has only one bullet.

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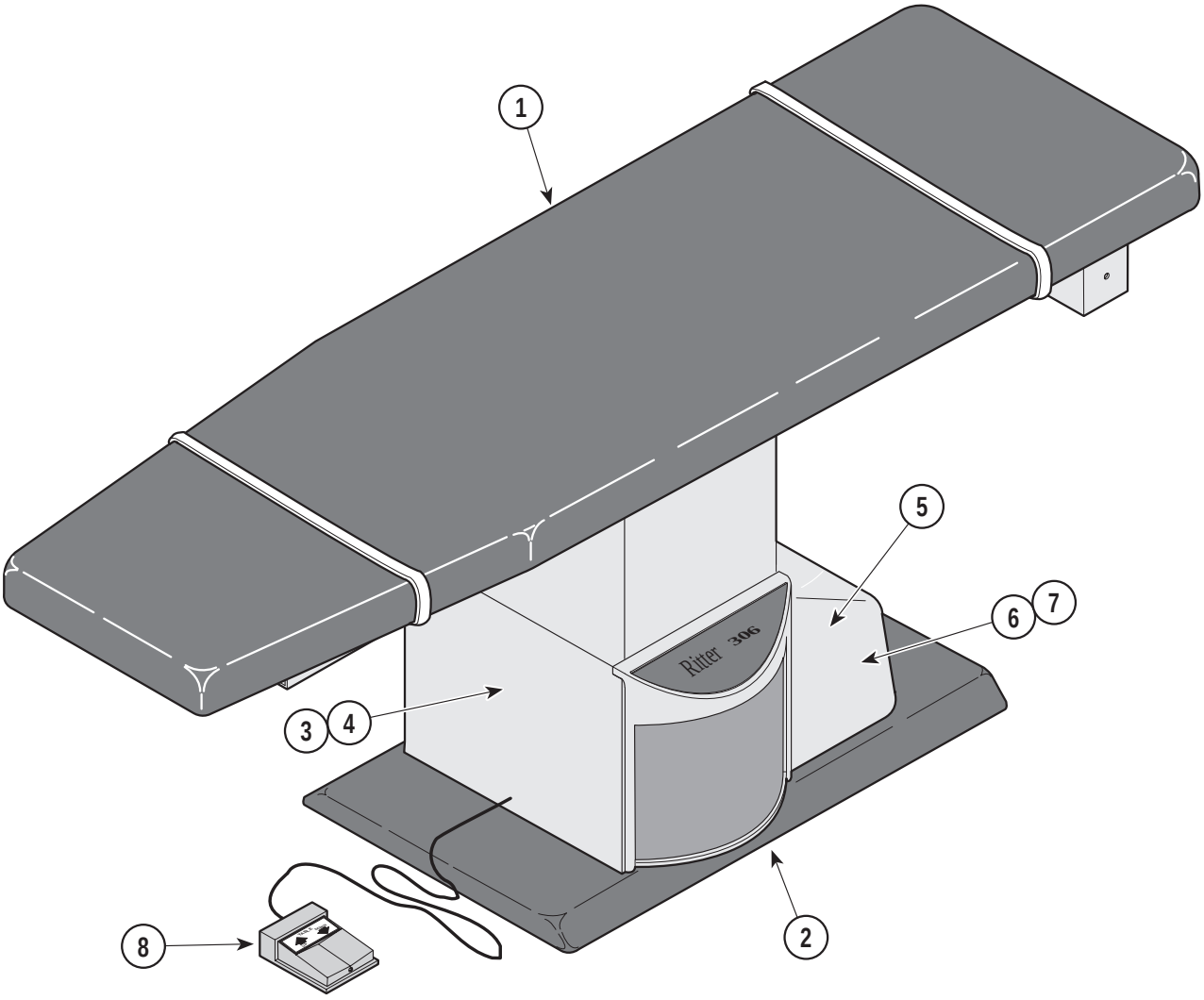
Pictorial Index



MA373700

Used on units with Serial Number HJ-1000, LJ1000 and LK1000 thru Present

Item	Part No.	Description	Page
	306-001	Easi-Riser Examination Table-120 V. (Serial Number Prefix "HJ")	6-2
	306-002	Biopsys Examination Table-120 V. (Serial Number Prefix "LJ")	6-2
	306-003	Biopsys Examination Table-100 V. (Serial Number Prefix "LK")	6-2
1	•	• Table Top Components	6-3
2	•	• Base Covers And Enclosures	6-4
3	•	• Base Mechanical Components	6-5
4	• •	• • Base Slide Assembly	6-6
5	•	• Base Electrical Components	6-7
6	•	• Hydraulic System	6-8
7	• •	• • Motor / Pump Assembly	6-9
8	•	• Foot Control Assembly	6-10
		OPTIONAL ACCESSORIES	
		Refer to MEDICAL ACCESSORY BOOK {004-0096-00}	
9	• 9A60001	• Restraint Belts	9A60
10	• 9A75001	• Caster Base	9A75
11	• 9A77001	• Bulk Storage	9A77
12	• 9A197001	• Swivel Wheel Caster Accessory	9A197
13	• 003-0859-00	• Installation & Operation Manual (Not Shown)	Ref

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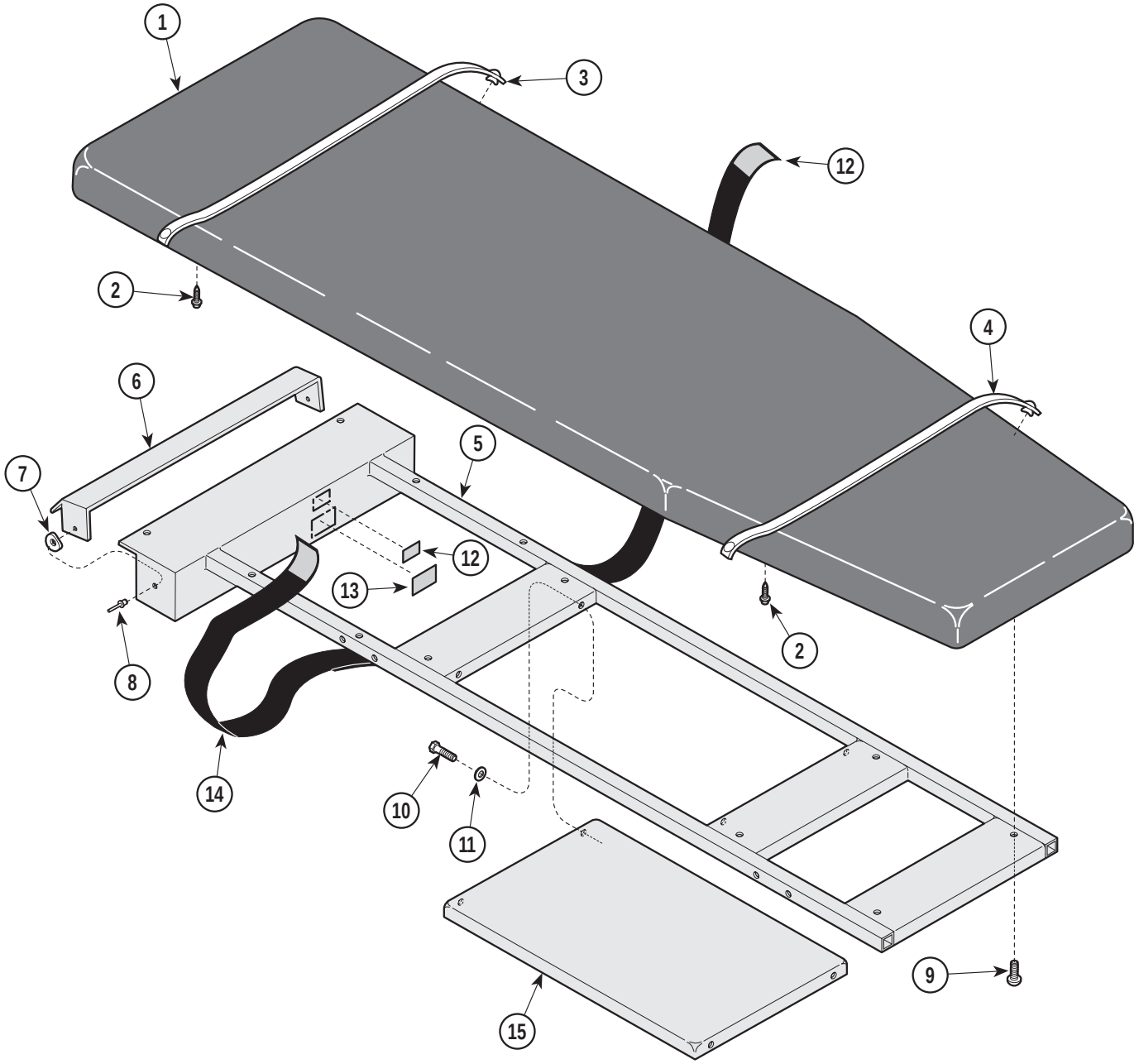
Table Top Components



MA373100

Item	Part No.	Description	Qty.
1	002-0051-00	Easi-Rider Upholstered Top Kit {Shown} (Includes Item 2 [Specify Color])	1
	028-0342-00	Biopsys Upholstered Top Kit (Includes Item 2 [Specify Color])	1
2	• 016-0022-00	• Stud	4
3	029-0017-04	Paper Tear Strip (Easi-Rider Only)	1
	029-0017-04	Paper Tear Strip (Biopsys Only)	2
4	029-0017-03	Paper Tear Strip (Easi-Rider Only)	1
5	030-0669-40	Easi-Rider Frame Weldment {Shown}	1
	030-1045-40	Biopsys Frame Weldment	1
6	050-0472-40	Paper Cover	1
7	045-0001-12	Curved Washer	2
8	042-0010-02	Pop Rivet	2
9	040-0250-03	Screw	8
10	040-0312-03	Screw	6
11	045-0001-27	Washer	6
12	061-0620-00	UL/CUL Label	1
13		Serial Number Label	1
14	9A60002	Restraint Strap	1
15		Inner Member Weldment (Refer to "Base Slide Assembly" Elsewhere)	Ref

The following are the current stock upholstery colors.

Slate Grey	AR
Sand Grey	AR
Terra Rosa	AR
Nile Green	AR
Royal Lavender	AR
Iris Blue	AR
Special	AR

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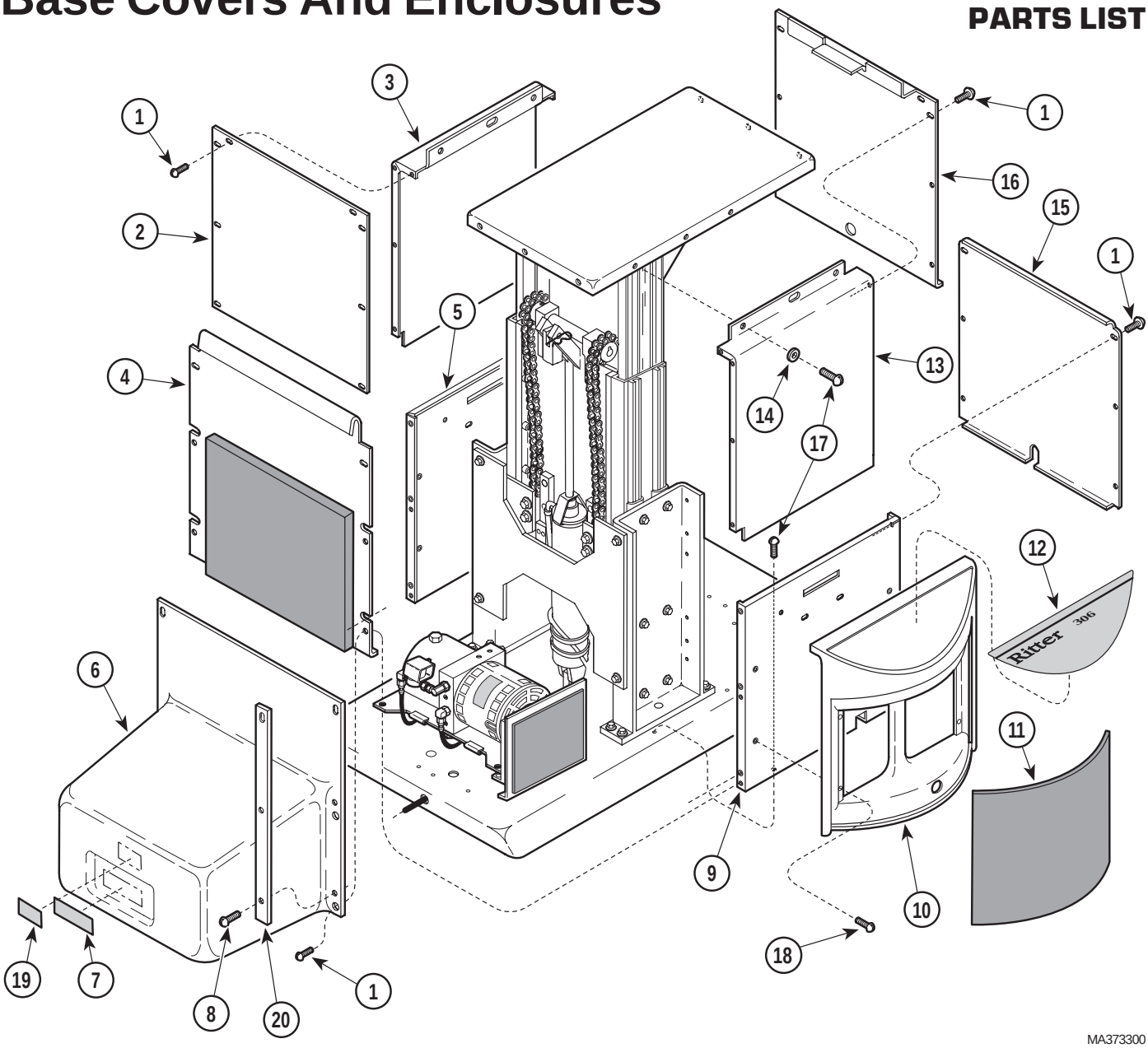
Base Covers And Enclosures



MA373300

Item	Part No.	Description	Qty.
1	040-0008-29	Screw	24
2	050-0362-40	Back Inner Shroud	1
3	050-0947-41	L.H. Inner Shroud (Less Nutserts)	1
	• 042-0045-02	• Nutsert	8
4	029-1585-01	Back Outer Shroud Assembly	1
5	050-2639-41	L.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
6	029-1586-01	Motor Cover Assm. (Domestic) {Shown}	1
	029-1608-00	Motor Cover Assembly (Export)	1
7	061-0293-00	Caution Label	1
8	040-0010-34	Screw	6
9	050-2639-40	R.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
10	053-0516-01	Side Panel	2
11	050-2483-01	Side Panel Insert (Warm Grey)	2
	050-2483-02	Side Panel Insert (Slate Grey)	2
	050-2483-03	Side Panel Insert (Rose Dust)	2
	050-2483-04	Side Panel Insert (Larkspur Blue)	2
	050-2483-05	Side Panel Insert (Victorian Teal)	2
	050-2483-06	Side Panel Insert (Sand Grey)	2
	050-2483-07	Side Panel Insert (Iris Blue)	2
	050-2483-08	Side Panel Insert (Nile Green)	2
	050-2483-09	Side Panel Insert (Royal Lavender)	2
	050-2483-10	Side Panel Insert (Terra Rosa)	2
	050-2483-99	Side Panel Insert (Special Colors)	2
12	061-0640-00	Nameplate Decal (306)	2
13	050-0947-40	R.H. Inner Shroud (Less Nutsert)	1
	• 042-0045-02	• Nutsert	8
14	045-0001-15	Washer	6
15	050-2617-40	Front Outer Shroud	1
16	050-0504-40	Front Inner Shroud	1
17	040-0010-47	Screw	12
18	040-0010-23	Screw	8
19	061-0295-00	Cord Tag (Domestic Units Only)	1
20	051-0796-40	Motor Cover Strap	2

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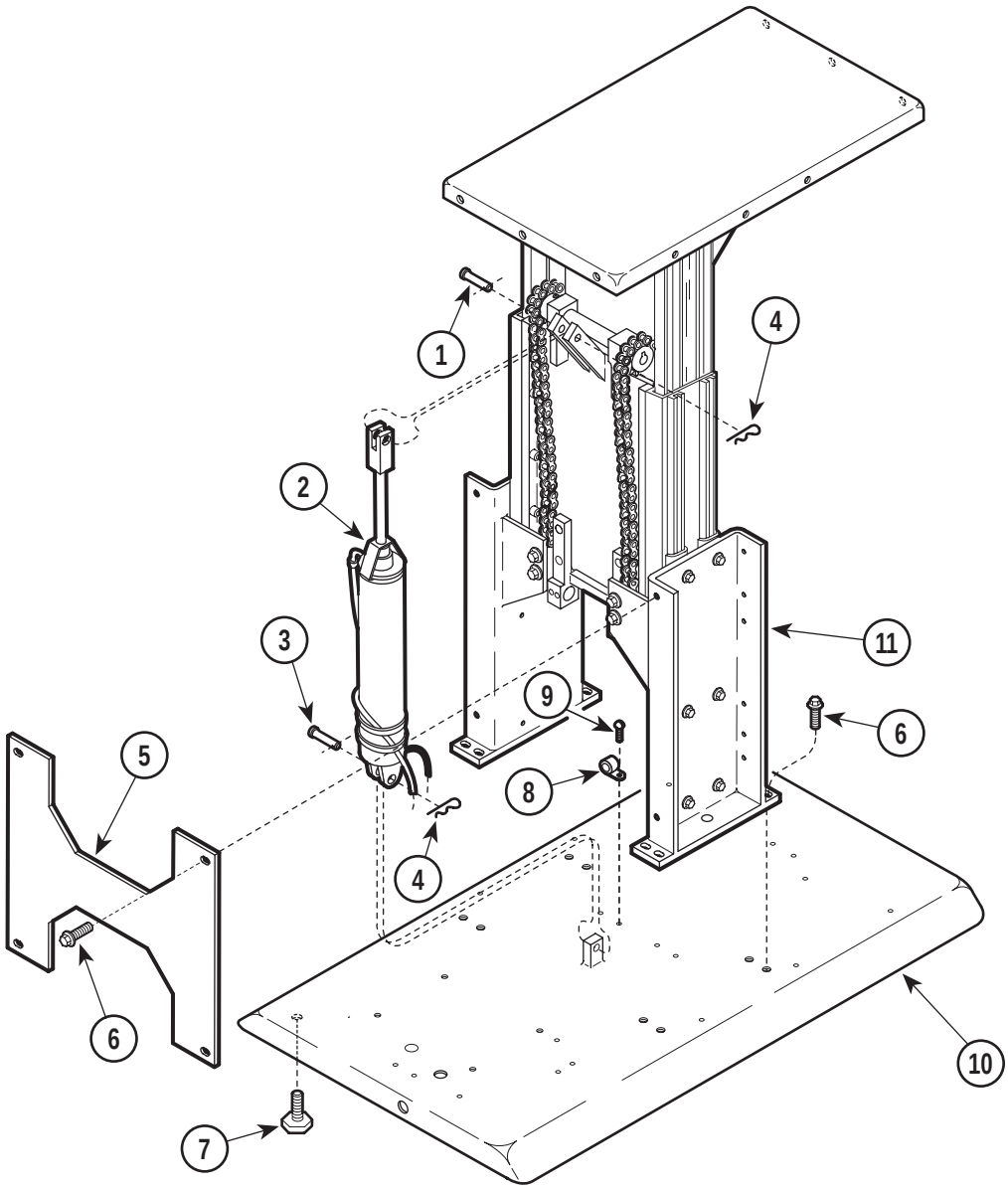
Base Mechanical Components



MA373400

Item	Part No.	Description	Qty.
1	042-0005-03	Clevis Pin	1
2		Base Cylinder (Refer to "Hydraulic System" Elsewhere)	Ref
3	042-0005-01	Clevis Pin	1
4	042-0004-00	Hitch Pin Clip	2
5	050-1475-40	Brace	1
6	040-0375-00	Screw	12
7	016-0001-00	Leveling Screw	4
8	015-0014-00	Wire Clip	1
9	040-0010-04	Screw	2
10	030-0898-00	Stationary Base Weldment (Less Nutserts)	1
11		Base Slide (Refer to "Base Slide Assembly" Elsewhere)	Ref

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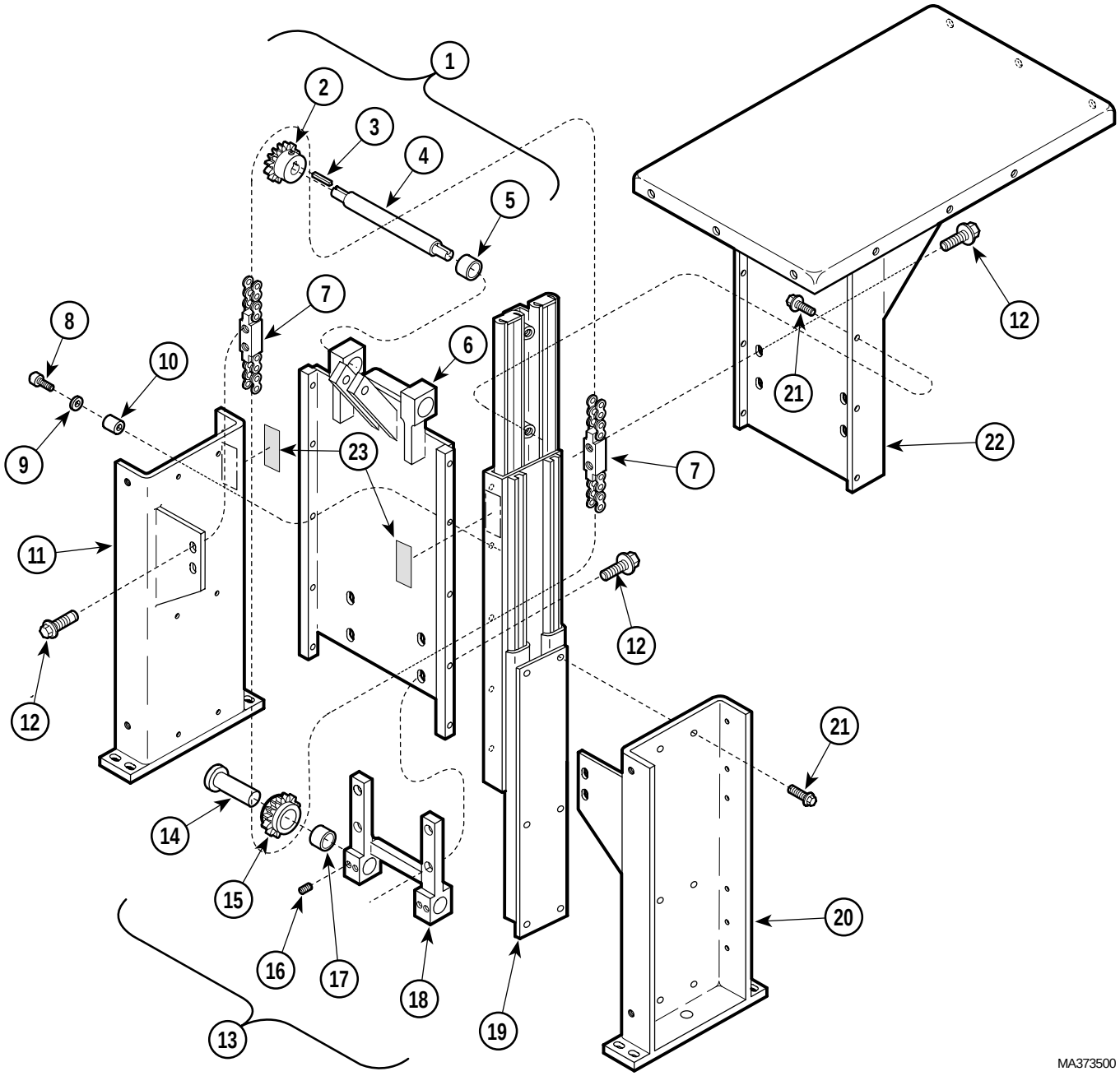
Base Slide Assembly



MA373500

Item	Part No.	Description	Qty.
	029-0251-02	Base Slide Assembly (Includes Items 1 thru 22)	1
1	• 029-0072-05	• Middle Member Assembly (Includes Items 2 thru 6)	1
2	• • 016-0151-00	• • Sprocket (Includes Set Screw)	2
3	• • 042-0008-00	• • Machine Key	2
4	• • 057-0105-00	• • Axle	1
5	• • 016-0149-00	• • Bearing	2
6	• • 030-0094-40	• • Middle Member Weldment	1
7	• 029-0070-00	• Chain Assembly	2
8	• 040-0008-30	• Screw	10
9	• 045-0001-10	• Lockwasher	10
10	• 052-0015-00	• Spacer	10
11	• 030-0092-41	• L.H. Support Channel Weldment	1
12	• 040-0375-00	• Screw	12
13	• 029-0071-05	• Idler Adjuster Assembly (Includes Items 14 thru 18)	1
14	• • 030-0274-00	• • Journal Weldment	1
15	• • 016-0152-00	• • Sprocket (Includes Item 17)	2
16	• • 040-0250-04	• • Set Screw	4
17	• • • 016-0149-00	• • • Bearing	2
18	• • 030-0273-40	• • Idler Adjuster Weldment	1
19	• 016-0234-01	• L.H. Base Slide (Opposite)	1
	• 016-0234-00	• R.H. Base Slide (Shown)	1
20	• 030-0092-40	• R.H. Support Channel Weldment	1
21	• 040-0250-88	• Screw	20
22	• 030-0213-40	• Inner Member Weldment	1
23	061-0045-00	Cover Caution Label	2

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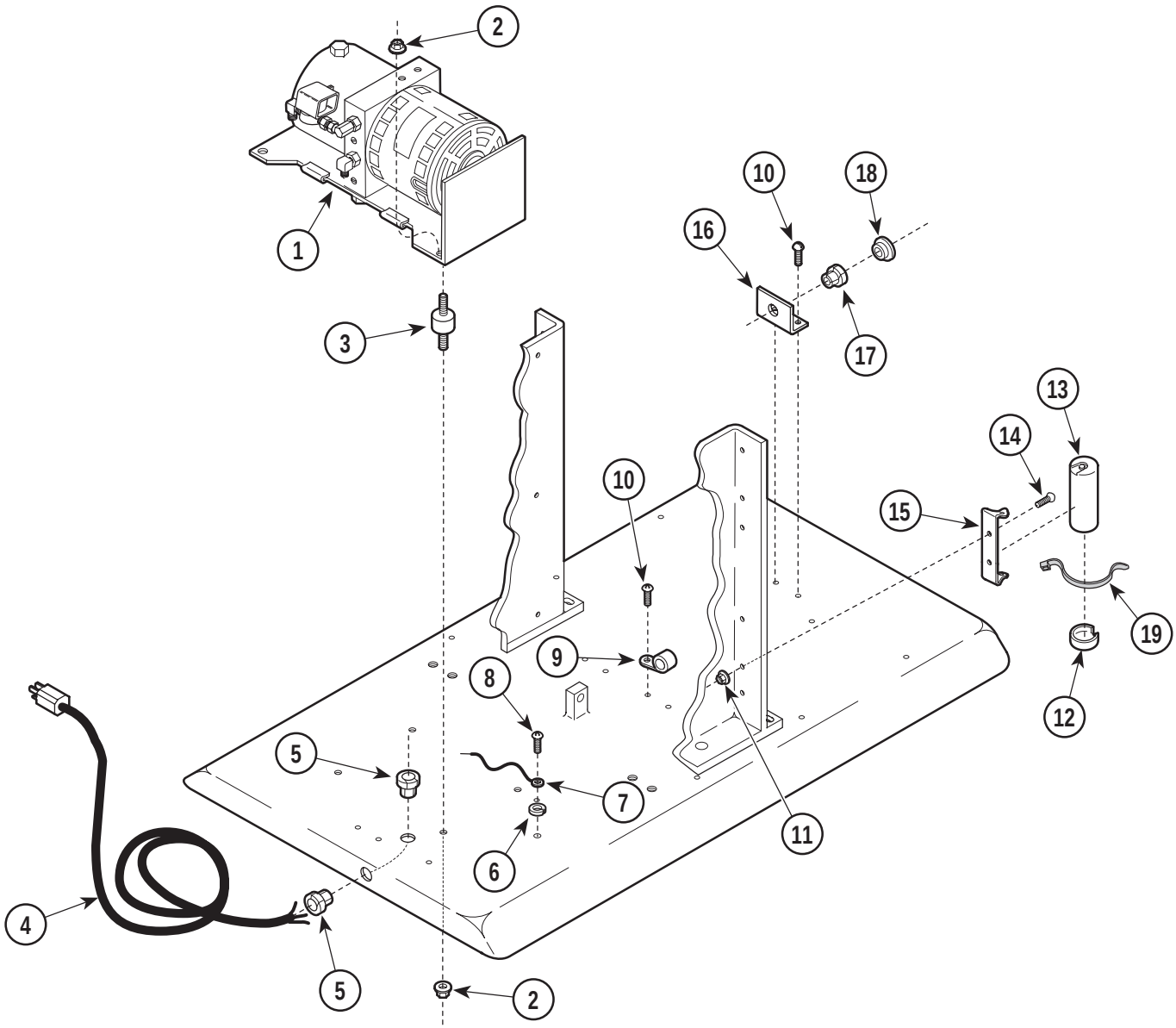
Base Electrical Components - Domestic



MA373600

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref
2	041-0250-13	Nut	8
3	053-0051-00	Motor Mount	4
4	002-0040-00	Power Cord Set Kit	1
5	015-0002-01	Strain Relief Bushing	2
6	045-0001-31	Lockwasher	1
7		Wire Assembly (Refer to "Wiring Diagram" Elsewhere {Section 5})	Ref
8	040-0010-47	Screw	1
9	015-0014-00	Cable Clamp	2
10	040-0010-04	Screw	3
11	041-0010-02	Nut	2
12	015-0413-00	Capacitor Cap	1
13	002-0043-00	Capacitor Kit	1
14	040-0010-28	Screw	2
15	015-0412-02	Capacitor Mounting Bracket	1
16	050-0957-00	Strain Relief Bracket	1
17	015-0002-02	Strain Relief Bushing	1
18	053-0068-10	Snap Bushing	1
19	015-0013-02	Cable Tie	1
20	015-0013-00	Cable Tie (Not Shown)	5

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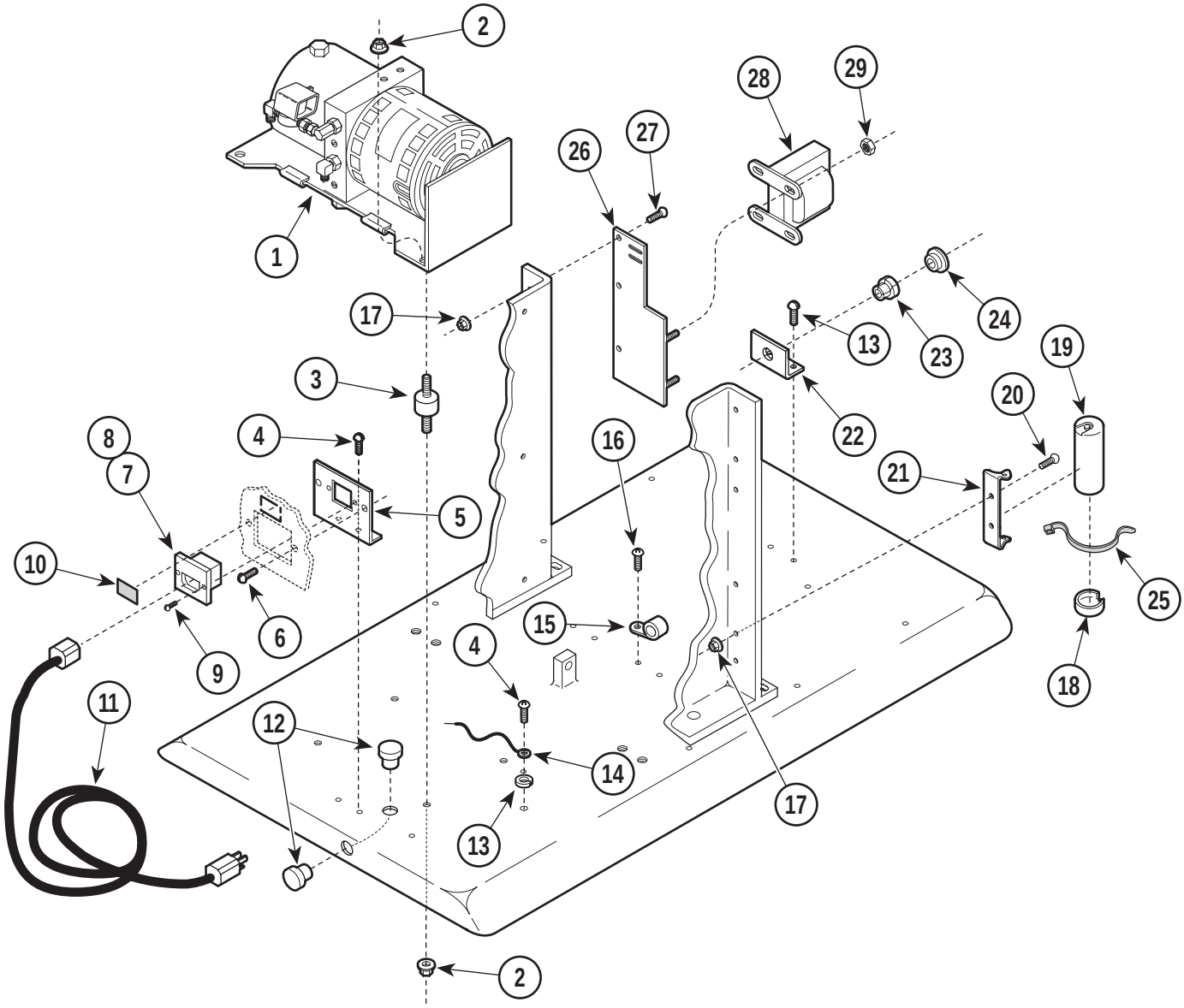
Base Electrical Components - Export



MA472300

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref
2	041-0250-13	Nut	8
3	053-0051-00	Motor Mount	4
4	040-0010-47	Screw	3
5	050-4244-40	Cord Bracket	1
6	040-0010-04	Screw	2
7	015-0364-00	Appliance Inlet (Complete)	1
	• 015-0364-01	• Inlet Housing (Shown)	1
	• 015-0364-02	• Fuse Holder (Not Shown)	2
8	015-0346-01	Fuse (Not Shown)	2
9	040-0004-11	Screw	2
10	061-0295-00	Cord Tag	1
11	015-0363-06	Japanese Cord Set	1
12	053-0071-00	Capplug	2
13	045-0001-31	Lockwasher	1
14		Wire Assembly (Refer to "Wiring Diagram" Elsewhere {Section 5})	Ref

Item	Part No.	Description	Qty.
15	015-0014-00	Cable Clamp	2
16	040-0010-04	Screw	3
17	041-0010-02	Nut	5
18	015-0413-00	Capacitor Cap	1
19	002-0043-00	Capacitor Kit	1
20	040-0010-28	Screw	2
21	015-0412-02	Capacitor Mounting Bracket	1
22	050-0957-00	Strain Relief Bracket	1
23	015-0002-02	Strain Relief Bushing	1
24	053-0068-10	Snap Bushing	1
25	015-0013-02	Cable Tie	1
26	030-1185-40	Transformer Bracket Weldment	1
27	040-0010-12	Screw	3
28	015-0830-00	Transformer Assembly	1
29	041-0008-02	Nut	4
30	015-0013-00	Cable Tie (Not Shown)	5

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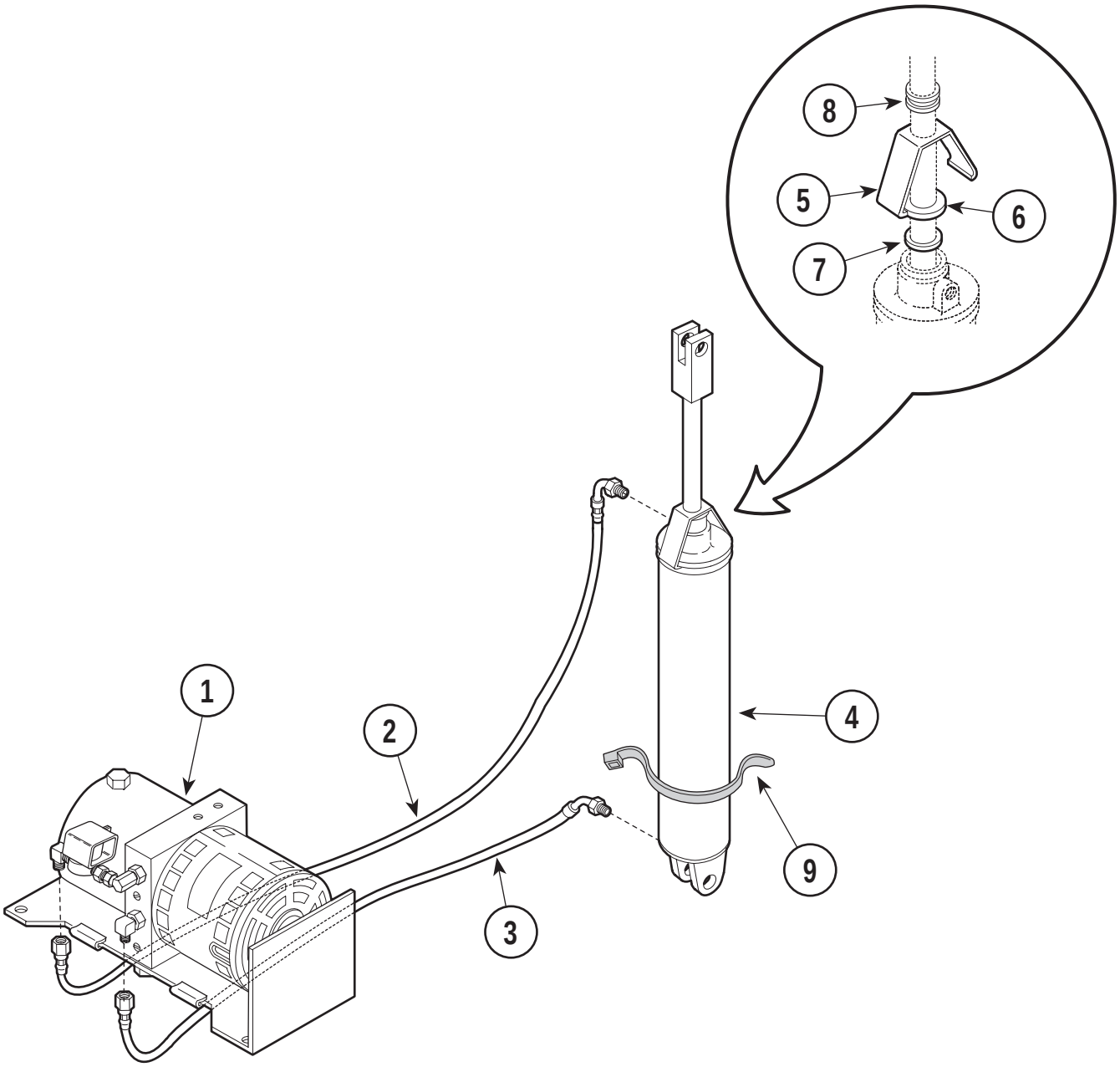
Hydraulic System



MA373200

Item	Part No.	Description	Qty.	Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to "Motor / Pump Components" Elsewhere)	Ref	5	025-0032-00	Rod Wiper Bracket	1
2	002-0143-00	Return Hose Assembly Kit	1	6	054-0109-00	Felt Wiper (1")	1
3	002-0144-00	Power Hose Assembly Kit	1	7	054-0108-00	Felt Wiper (11/16")	1
4	002-0001-00	Base Cylinder Kit	1	8	053-0226-03	Snap-in Nyliner Bearing	1
				10	015-0013-02	Cable Tie	1

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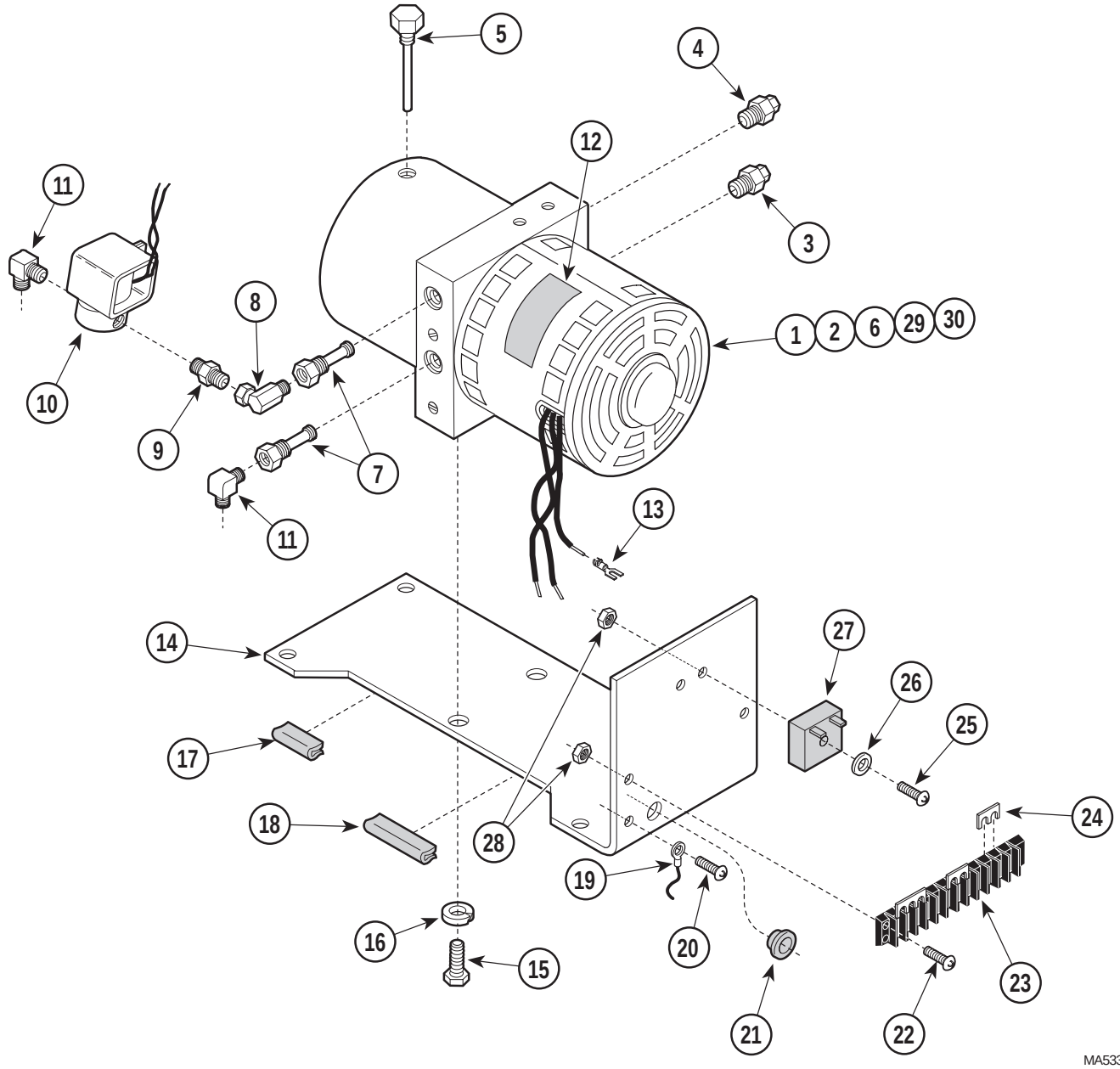
Motor / Pump Components



MA533900

Item	Part No.	Description	Qty.
1	002-0444-00	Motor / Pump Assembly (Includes Items 2 thru 8)	1
2	• 014-0169-00	• Motor Shaft Seal (Not Shown)	1
3	• 014-0248-00	• Relief Valve (Low Pressure)	1
4	• 014-0249-00	• Relief Valve (High Pressure)	1
5	• 014-0262-01	• Filler Cap	1
6	• 014-0262-02	• O-Ring	1
7	• 014-0168-00	• Shuttle Valve	2
8	• 014-0260-00	• Elbow	1
9	014-0045-00	Connector	1
10	002-0038-00	Anticavitation Solenoid Valve	1
11	014-0096-00	Elbow	2
12	061-0135-00	Motor Caution Label	1
13	015-0018-03	Spring Spade Terminal	5
14	050-2662-40	Motor Base	1
15	040-0500-02	Screw	2
16	045-0001-33	Lockwasher	2
17	016-0360-00	Protective Trim (Specify Length - 1")	1
18	016-0360-00	Protective Trim (Specify Length - 2")	1
19		Ground Wire (Refer to "Wiring Diagram" Elsewhere)	Ref
20	040-0010-47	Screw	1
21	053-0068-00	Snap Bushing	1
22	040-0006-33	Screw	2
23	015-0009-01	Terminal Block	1
24		Jumper (Refer to "Wiring Diagram" Elsewhere)	Ref
25	040-0006-52	Screw	1
26	045-0001-21	Washer	1
27	015-0061-00	Time Delay Relay	1
28	041-0006-01	Nut	3
29	014-0020-00	Mineral Oil	AR
30	014-0007-00	Pipe Sealant	AR

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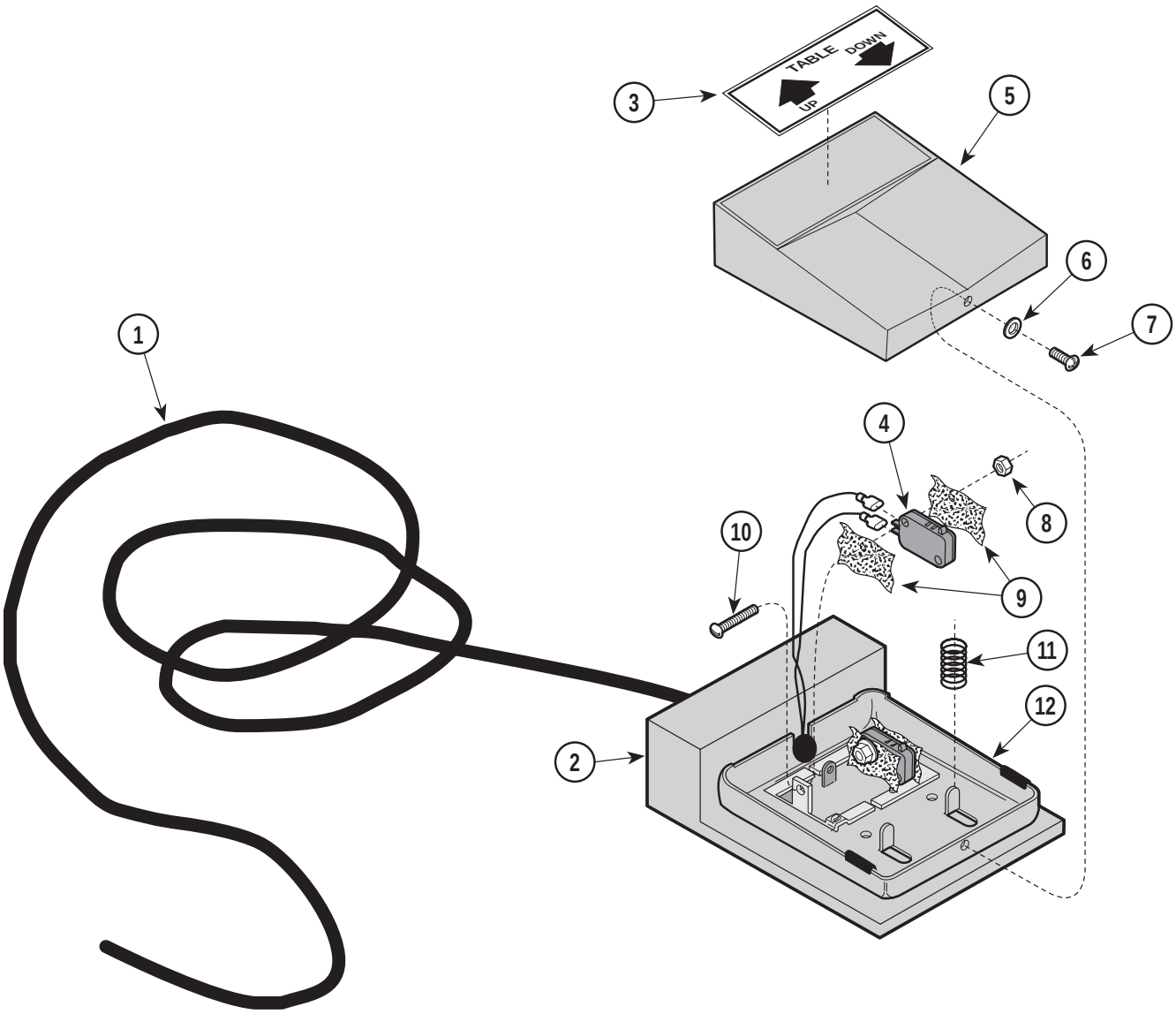
Footswitch Assembly



MA362900

Item	Part No.	Description	Qty.
	002-0055-00	Footswitch Assembly (Includes Items 1 Thru 12)	1
1	•	• Cable (Refer to "Wiring Diagram" [Section 5] Elsewhere)	Ref
2	•	• Base	1
3	• 061-0096-00	• Label (Table)	1
4	• 002-0101-00	• Foot Control Switch	2
5	•	• Footswitch Pedal	1
6	•	• Lockwasher	1
7	•	• Screw	1
8	•	• Nut	2
9	•	• Insulator	2
10	•	• Screw	2
11	•	• Spring	2
12	•	• Switch Mount	1

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SECTION VI
PARTS LIST

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COMMENTS

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However, if you find any errors or feel that there should be a change, addition, or deletion to a manual, please let us know!

Page(s) and Paragraph(s) Needing Changed:

Description of Error or Desired Change:

Please fax or mail a copy of this completed comment sheet to:

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60 Vista Drive
Versailles, Ohio 45380
Fax: (937) 526-5542

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FAX ORDERING FORM

(SERVICE PARTS ONLY)

NOTES:

- **ALL BLOCKED AREAS MUST BE COMPLETED.**
- **USE FOR NON-WARRANTY FAX ORDERS ONLY. WARRANTY ORDERS MUST BE TELEPHONED IN (1-800-MIDMARK).**

ATTENTION: SERVICE DEPARTMENT FAX#: 877-249-1793

ACCT #: _____ **P.O. #:** _____ **DATE:** _____

NAME: _____ **SHIP TO:** _____

ADDRESS: _____

CITY, ST.: _____

CONTACT: _____

PHONE: _____

☐ **NON-EMERGENCY ORDER - TO SHIP WITHIN 72 HOURS IF PART(S) IN STOCK.**

☐ **EMERGENCY ORDER - TO SHIP WITHIN 24 HOURS IF PART(S) IN STOCK (IF ORDER IS RECEIVED BEFORE 1:30 P.M. E.S.T).**

SEND NOTIFICATION IF PARTS ARE NOT AVAILABLE TO SHIP WITHIN 24 HOURS VIA E-MAIL OR FAX TO: _____

METHOD OF SHIPMENT **OTHER** _____

UPS	FED EX
☐ NEXT DAY A.M.	☐ NEXT DAY A.M.
☐ NEXT DAY P.M.	☐ NEXT DAY P.M.
☐ 2ND DAY	☐ 2ND DAY
☐ GROUND	☐ ECONOMY

QTY.	PART #	DESCRIPTION (SPECIFY COLOR OF ITEM IF APPLICABLE)	COLOR CODE	PRICE/PER

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P.O. Box 286
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